Telephony.

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NOW A FAVORABLE TIME TO BUY; ON GOVERNMENT OWNERSHIP

Every day we read the advice of business leaders, who are trying to hasten the return of prosperity, that now is the right time to buy good stocks. They are phenomenally low, say these advisers, and offer a wonderful opportunity for profitable investment—besides helping business.

The same advice can be urged upon telephone companies with regard to buying equipment and supplies. Prices of materials are low today, and offer service companies the opportunity to add to their warehouse stocks at a substantial saving—besides helping general business as well as their own.

Now is a good time to place orders for the supplies which will be needed when the construction season opens this spring. With commodity prices at the present levels, buyers can save money for themselves and do their bit towards helping in the revival of general industry.

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One executive of a telephone organization put the case very well when he said:

"I would like to urge upon all of our companies increased expenditures in all departments for the things that are needed, or soon will be needed, both inside and outside. I do this for the simple reason that our best authorities agree that this is an excellent way to save money and help prosperity.

Telephone materials are to be bought more advantageously at this time than we will be able to purchase them next year or the year after. Labor is freely available at this time, and there is no question that whatever employment you can furnish is of direct public benefit.

It is far better to proceed vigorously with necessary work than to wait for the winter's sleet storms to tear down property and to inflict a double loss in the way of demolished plant and lost income during the period of restoration. We believe that we are making money by spending money."

* * * *

Business, as we all know, is an endless chain. The dollar we spend starts out on a journey to help a countless number. An order for materials not only helps the supply dealer, but it encourages the manufacturer to extend his operations and give employment to labor and capital, thus feeding the stream of industry, which flows on and on.

Eventually everybody benefits from the increased activity, so the service company will sooner or later profit from better times. The main point, however, is that buyers at present low prices can realize a saving immediately.

Government Ownership.

Reports from the national capital, and also many state capitals, indicate that the advocates of public ownership of utilities are working with new zeal to advance their cause. During prosperity they found it rather difficult to interest people in so complicated a question, but they hope to re-kindle the demand for government ownership while there is a state of unrest. To the unemployed, they think, any proposed radical change in conditions will seem helpful.

The fight which the radical United States senators are making on President Hoover's power commission comes from the government-ownership-of-utilities faction, and, regardless of the political scent clinging to the quarrel, is disturbing to utilities, especially the electric light and power section.

Just where the revived government ownership movement will lead is hard to say, but it scarcely seems likely that when—as now—the government finds it necessary to increase taxes to get money to run the federal machine, it will be able to embark in an enterprise of putting up billions to take over the electric utilities.

* * * *

Not the least important evidence of new activity by the public ownership crowd is the appearance of "home rule" bills in several state legislatures. They offer a "this way out" sign to state regulation of public service companies and plan to do away with state commissions as now constituted.

Governor Meier, of Oregon, is working for the abolition of the present public service commission and the creation of a "department of public utilities" to consist of one commissioner to be appointed by the governor. That would be some job. The governor also recommends legislation extending the home rule principle to municipalities and the repeal of the "certificate of convenience and necessity" act.

An important feature of the utility regu-

lation plans announced by Governor Meier proposes rigid control of the right of public utility corporations under a common ownership to contract with each other. This is aimed at holding companies which control local operating concerns that often come into conflict with city and state authorities over questions involving rates and service. The local companies contract to pay the holding corporations certain amounts for various services, which constitute an expense that figures largely in the rates paid by the public.

Some of the telephone companies in the state would be affected by such legislation. Hitherto the state regulatory authorities have been unable to bring the holding companies under their jurisdiction. The plan proposed would exercise more supervision over the right of local companies to enter into such contracts with the parent.

The long-standing dispute with the Pacific Bell and its holding company, the American Telephone & Telegraph Co., is one of the principal reasons for the proposal, which would, however, apply to all holding companies having local operating subsidiaries.

Defending the Telephone.

It is always refreshing to read a newspaper article which defends telephone service against those who use it ignorantly and blame someone else—usually the operator. A feature writer in the Chicago Tribune discussed the telephone to the extent of a column, and decided that it could be either a help or an annoyance "depending on the manners of the caller." Regarding wrong numbers, one part of the discussion said:

"To be rude to a telephone operator is to take an unfair advantage and in most cases, to make oneself out pretty silly. Nine times out of ten, if the ratio isn't even greater than that, the telephone operator is right. At her command she has every facility for getting a call through properly.

She doesn't know the caller from Adam, and she has no reason in the world for being 'ornery' to any individual. What's more, if she's at all human, she probably doesn't crave bringing wrath on her head; she can't answer back. And where's the fun in that?

It is, of course, distinctly annoying to both parties when, for some reason, a wrong connection is made. The person who is making the call should apologize. The fault lies on his side of the telephone wires. His enunciation may have been faulty, his operator may have erred or, if he used a dial telephone, he made the mistake himself. The person who answered may have done so with great inconvenience. So the caller is obliged to apologize."

The Tribune, by the way, frequently prints a "Beg Your Pardon" department to excuse its own mistakes, which shows its management recognizes the human tendency to error in all lines of business.

COMING CONVENTIONS

Nebraska Telephone Association, Lincoln, Hotel Lincoln, February 10-12.

Oklahoma Utilities Association, Huckins Hotel, Oklahoma City, March 11 and 12.

Texas Independent Telephone Association, Fort Worth, Texas Hotel, March 17, 18 and 19.

Iowa Independent Telephone Association, Hotel Fort Des Moines, Des Moines, April 7, 8 and 9.

Indiana Telephone Association, Claypool Hotel, Indianapolis, May 6 and 7.

Up-State Telephone Association of New York, Seneca Hotel, Rochester, May 20 and 21.

Pennsylvania State Telephone & Traffic Association, Hotel Penn Harris, Harrisburg, May 26, 27 and 28.

Kansas Telephone Association, The Sunflower Hotel, Abilene, June 2-4.

Aspects of Future World Communications

Telephone, Telegraph and Radio, and Their Combinations in Providing Adequate Means for Rapid Reliable Communication—Possibilities and Probabilities of Future—Address Before Annual Convention of the Wisconsin Association

By Stanley R. Edwards,
Editor of TELEPHONY, *Chicago*

A review of world communications indicates a tremendous development and activity during the past ten years, and particularly since the opening of the transatlantic telephone service in January, 1927. In speaking of world communications, the term is generally understood to include communication by telephone, by telegraph, and by radio, and their combinations.

The success which attended the inauguration of radiotelephony in connection with wire telephony has greatly stimulated the development of communication systems throughout the entire world. In the pages of TELEPHONY during the course of the past few years, have been reported various events and happenings in the realm of communications all over the world, which if studied give rise to interesting speculations as to future possibilities and probabilities. The communications industry is alive with the spirit of romance.

At the time of the treaty at Versailles in 1919, it is stated, the three things which all governments regarded as important for national protection and prestige, were: (1) The control of international transportation; (2) international communication; (3) petroleum.

The first telegraph message was sent over the wires in May, 1844, and in July, 1866, the first submarine telegraph cable was laid connecting North America with Europe. Following the successful establishment of telegraph service over that cable, other submarine telegraph cables were laid, and practically the entire world was connected by wire telegraph when the radio telegraph came in use about 1912.

The history of submarine telegraph cable shows primarily that although the dominating personality in the early attempts to lay a cable across the Atlantic was an American, Cyrus W. Field, yet they were laid by British capital.

Great Britain was quick to realize the importance of the telegraph in its early days and was willing to furnish the necessary funds. It was exceedingly difficult at that time to raise capital in this country where money was needed for the development of domestic enterprise, and the vast majority of people was unwilling to invest in an enterprise entailing such a risk as that involved in submarine telegraphy.

In the field of international communications, Great Britain had developed prior to the war as the binding cords of her great dominions, a cable system which was and is predominant. England took the lead in cables because of her commercial enterprises, her shipping enterprises all over the world, and because communication was more important to her at that time than to any other nation in the world.

Another reason for England's leadership in the manufacture and laying of cables is gutta-percha, which came from the British colonies. British cable manufacturing com-

panies in many cases promoted cable companies to keep their plants occupied.

With the advent of radio, the world was brought closer together by means of direct radio-telegraph service between continents. The development of the beam radio system in the past four or five years greatly extended the reliability of radio and seriously threatened the supremacy of the telegraph cable. The inauguration of the transatlantic radiotelephone system was followed by other international radiotelephone systems, extending over vast distances.

As an illustration of these distances, over which telephone communication is possible, last July newspapers carried dispatches telling of a conversation over a distance of 14,000 miles. Lewis Yancey, flying in his airplane over Buenos Aires in South America, talked with Sydney, Australia.

His plane was connected by radio with the station of the International Telephone & Telegraph Corp., at Buenos Aires, and from there the conversation went by radiotelephone to Madrid, Spain, where it was transferred to land wires of the Spanish Telephone Co. and the French government as far as the British Channel. A submarine cable took the conversation under the British Channel to England and the land lines of the British postoffice took it to the radiotelephone station at Rugby, from where it was sent by radiotelephone to Sydney.

The traffic over the transatlantic radiotelephone circuit has developed to such an extent that a telephone cable is to be laid in the Atlantic Ocean connecting North American with Europe. The announcement that a submarine telephone cable of such a length is possible and commercially feasible will have a great bearing on the future of world communications in the course of the next decade.

Some interesting sidelights on world communications were brought out in the course of the recent investigation by the Senate committee on interstate commerce, concerning a federal commission on communications.

Sosthenes Behn, at the time president of the International Telephone & Telegraph Corp., in discussing radio, said:

"We look upon radio in the telephone field, particularly, and to a certain extent in the telegraph field, as a sort of a scout going out creating the roads of communication; but when the volume is there, and we can reach the two points directly, it is admitted today by the best minds that a telephone and telegraph cable is the one that responds the better to the service. This is particularly true between England and the United States, and between other points. It is not so when you have to pass through telegraph wires, such as to Poland."

As has been previously indicated, the development of radio gave a great stimulus to the communications of the world. Newcomb Carlton, president of Western Union Telegraph Co., testified that: "The radio, in my judgment, has been of inestimable value to the cables of the world. Not only has it stimulated us to revise our practices and improve our operation, but it has also tended to reduce rates, and I hope there will always be that stimulating competition between us." Then he gave a concise outline of submarine telegraph cable developments and improvements.

"The Communications Industry Is Alive With the Spirit of Romance. If Studied," Says Mr. Edwards, "the Various Events and Happenings Give Rise to Interesting Speculations as to Future Possibilities and Probabilities."

"When the old cables were laid," said he, "they were limited to sending one message each way. One message could go each way simultaneously; that is, it was a duplex cable. The research and development engineers of the Bell company invented a form of cable loading called permalloy. And we built a cable under their specification and subject to their direction, which was the first of these great communication instruments ever built."

The capacity of one of the old type Western Union cables was 110 letters per minute—they are always measured in letters. The cable it built under the direction of the telephone engineers, which was laid in 1924, has a capacity of 1,500 letters one way, per minute. Another permalloy cable was laid between Newfoundland and Great Britain in 1926, with a capacity of 2,500 letters per minute. That cable in itself had sufficient capacity to handle the total traffic between North America, Great Britain and Europe.

A talking cable, Mr. Carlton stated, is nothing more than a super-telegraph cable. It is a cable with a very large core. The telephone cable which the American Telephone & Telegraph Co. proposes to lay in the Atlantic between Newfoundland and Ireland in the next two years will have an almost unlimited telegraph capacity because of the five-hour differential in time, assuming that people are through talking at 12 o'clock midnight in the United States. That is 5 o'clock a. m. in London. Except for an occasional message, the cable will lie without any use for about seven hours.

During that period, Mr. Carlton stated, it will have an almost unlimited telegraph capacity; at least theoretically considered. The capacity of that cable, he explained, will be 20 times that of the largest cable which now connects the United States and Great Britain.

That cable, Mr. Carlton believes, is only one of a number that must follow, because it will only carry one conversation at a time. "If that is successful," he stated, "they will lay other cables to Europe. So you see ahead of us and not in the far distance, there is a new and unknown and mighty means of communication that in my judgment is going to reduce cable rates very much below where they are now, and new practices and new uses of communication will be found joining the two countries."

According to David Sarnoff of the Radio Corp. of America, there has been no real advance in the methods of communication by telegraph since the first message in May, 1844.

"We are still taking paragraphs and breaking them up into sentences, and those into words, and the words into letters, and the letters into dots and dashes," he declared. "Then we transmit these dots and dashes either across the wire or through the air. On the receiving side that operation is reproduced; the dots and dashes are put into letters, these into words, the words into sentences, and the sentences into paragraphs.

"This I regard as an antiquated system of communication, but it is the best system that we know about at the present time as a practical matter."

But Newcomb Carlton of the Western Union Telegraph Co. thinks otherwise, saying: "There is no more comparison between the way in which we are handling the telegraph business today and in the days of Professor Morse, than there is between the sailing ship and the airplane; anyone who knows anything about the business knows that to be the fact. Today we are employing 75 per cent as many Morse operators as we employed in 1910, and 80 per cent of our business is being done by machine."

Owen D. Young, chairman of the Radio Corp. of America and of the General Electric Co., presents some contrasts of telegraph and telephone, and speculates as to future possibilities of the telegraph. He says:

"Communications between human beings are principally carried on by speech or writing—that is, by voice or record—and the making of this possible between persons separated by great distances has been a development of the past few years. In

this country, voice communication—that is, telephone communication—has made great strides since the opening of the transcontinental telephone line in January, 1915; and record communication, or communication by telegraph, has advanced considerably in the past few years.

Telegraphy and Telephony.

"Much more effort and much more money have been put into research in telephony than in telegraphy. As a result, one may call up almost anyone in North America, or in the principal countries of Europe, and carry on a conversation, provided he can understand. It is the language, not the facilities, which is a barrier to such communication.

To send a communication by record—that is a telegram—it must be written and then conveyed by messenger to a receiving telegraph office, and the reverse process at the delivery end. If this could be done as promptly and as easily as voice communication, then record communication would be said to be keeping pace with the telephone."

Newcomb Carlton of the Western Union, on the other hand, says that: "The telegraph is not a great public means of communication." In his mind there are two great methods of communication—one is the telephone, and the other is the mail. "The telegraph has a somewhat limited use, personal and domestic," he states. "Our so-called social business we think is about 10 per cent of our volume.

"The per capita use of the telegraph is much greater in the United States than in any country in the world. That is because of the stimulating effect of competition. It is 250 per cent greater than in Germany, and over 100 per cent greater than in Great Britain, where the telegraph has long been the favorite means of communication."

Some of the problems of international communication are briefly outlined by General J. G. Harbord, president of the Radio Corp. of America.

"In international communications," said he, "the two ends of radio circuits are almost never owned and operated by the same entity. In more countries than the United States, alien ownership and control of radio stations are forbidden by law.

International Communications.

"The country in which one terminus of a radio circuit is located has exactly the same sovereign jurisdiction over its operation as has the country in which the other terminus is located. Therefore, rates must be fixed, operating practices standardized, records kept, and accounts rendered by agreement between the countries in which the termini are located or between the agencies owning and operating them."

The matter of merging of radio, wires and cable came up during the investigation, due to the International Telephone & Telegraph Co. having an unfulfilled contract to purchase the communication facilities of the Radio Corp. of America.

At the present time, the laws of the United States prohibit the merging of radio and cable facilities, in order to prevent a monopoly being obtained. Repeal of Section 17 of the present White radio law would permit the International corporation to take over the Radio corporation's communication facilities, thereby giving one cable company a monopoly on radio communications and cable combined, leaving the other American cable company without possibility of having any radio.

Several foreign governments, notably England, have organized companies and established a monopoly of radio and cable facilities. The merger of the British wires, cables and radio was declared a menace to American companies; against which the International corporation and the Radio corporation could not successfully compete unless allowed to merge as proposed.

In the hearings before the Senate committee arguments were presented urging the repeal of the law against merging of cable and radio and permitting domestic corporations engaged in international communications to merge wires and radio. The views presented by officials of the various communications companies are indeed interesting.

Competition in Communications.

Owen D. Young, then chairman of the Radio Corp. of America, speaking of competition, said:

"On the ground of quality of service, on the ground of research and development of service, and on the ground of ultimate cost to the community of service, I am forced to the conclusion that a single company, under adequate government regulation, can do our record communication service better and more cheaply than under the competitive system.

You will notice that I have not said anything about wires or cables or radio. I have not done so because I do not believe that the people of the United States have any great interest in the question of the agency which is used for their communications.

What they want are adequate, cheap, and reliable communications, both by voice and record. It is quite immaterial whether the transmission is by wires, above ground or below, by air, or ether, or crust of the earth; and of these instrumentalities, all should be available and will be used by the companies which have our public communication service to perform in carrying on record communications.

That company will use the best and cheapest instrument; one need have no fear about that. The whole history of our public service shows that much at least: that engineers and managers of government-regulated monopolies have left no stone unturned to secure the lowest costs for services, if for no other reason than that they wish to keep ahead of the regulating authorities and so insure or increase their returns.

So I think not only that the telephone company should have wires and cables and radio available as instruments of the public service, but that the record communication company which I visualize, should similarly have such instrumentalities available for its service in order that the best may be used.

Wires and Radio.

"As a mater of fact, they supplement and insure each other. When sleet storms and tornados break our wires, the air should be opened to carry messages. These instrumentalities supplement each other, and should be at some time in their development so used.

Although I believe in the unification of the telegraph services in one company under government control, I do not believe in the unification of the telephone and telegraph services in one company under the present development of the art.

Whether or not what I have said is true regarding unification of the domestic telegraph services of the country, I am sure it is true in the fields of international telegraph services, and this point I regard important.

I think if wires and radio can be combined, that there then is an opportunity to develop a record communication service comparable with the telephone service, available as widely and as effective in its use. I say the combination of radio and wires, because the moment you get to a great city and have to get outlets into thousands of offices—if you are going to equal the telephone, you will have to get outlets into thousands of offices—the radio becomes impractical, I think, and I do not believe it ever will be satisfactory. You have to have wires there.

But when you are jumping over vast distances over land or sea, there I think radio is going to be extremely useful. And it may be if facsimile transmission is developed, that radio will play a most important part in that development.

Facsimile Transmission Future.

"For example, I visualize the day when there will be a pad on my desk with a special instrument, or else an attachment to my stenographer's typewriter, by which if I wish to send a message to you in Kentucky I may write it out. Connections will be made through a central system like the telephone, and there will be reproduced on a pad in your office, as quickly as the telephone service can be had, the facsimile of my message. Then, I would think for the first time that we had a satisfactory communications service. That may mean a combination of wires and radio."

Col. Sosthenes Behn, of the International Telephone & Telegraph Corp. testified with special reference to international communications:

"After giving much thought and consideration to the problem of the development and the future of record communications within the United States, and between the

United States and other parts of the world, I am convinced that it is economically sound and in the interest of the American people, that the merger of the wire, cable, and radiotelegraph services in this country and those reaching out to the other countries of the world, should be legally sanctioned.

A preliminary study of the economic results indicates that the fusion of the Western Union system, the Postal Telegraph and Commercial Cable systems, and the Radio corporation's system would result, after a short period of readjustment, in economies of some $15,000,000 annually, which would be reflected in the prompt reduction of telegraph rates and the extension and improvement of the services rendered.

And the authority to merge communications systems, other than telephone, would permit the unification of wire, cable, and wireless communications to the great benefit of the American people. It would give them the very best service at the lowest possible rates. It would enable them to be on a parity with the other communication systems in the world.

The consolidation of the telegraph services will further permit of the economical and prompt establishment of a unified national printer telegraph exchange service throughout the United States. This modern method of record communication, if developed by two or more competing systems, will result in a very large wastage through uneconomical duplication of plant; and such a national printer exchange service, as should be provided, can not be accomplished by two or more competing companies.

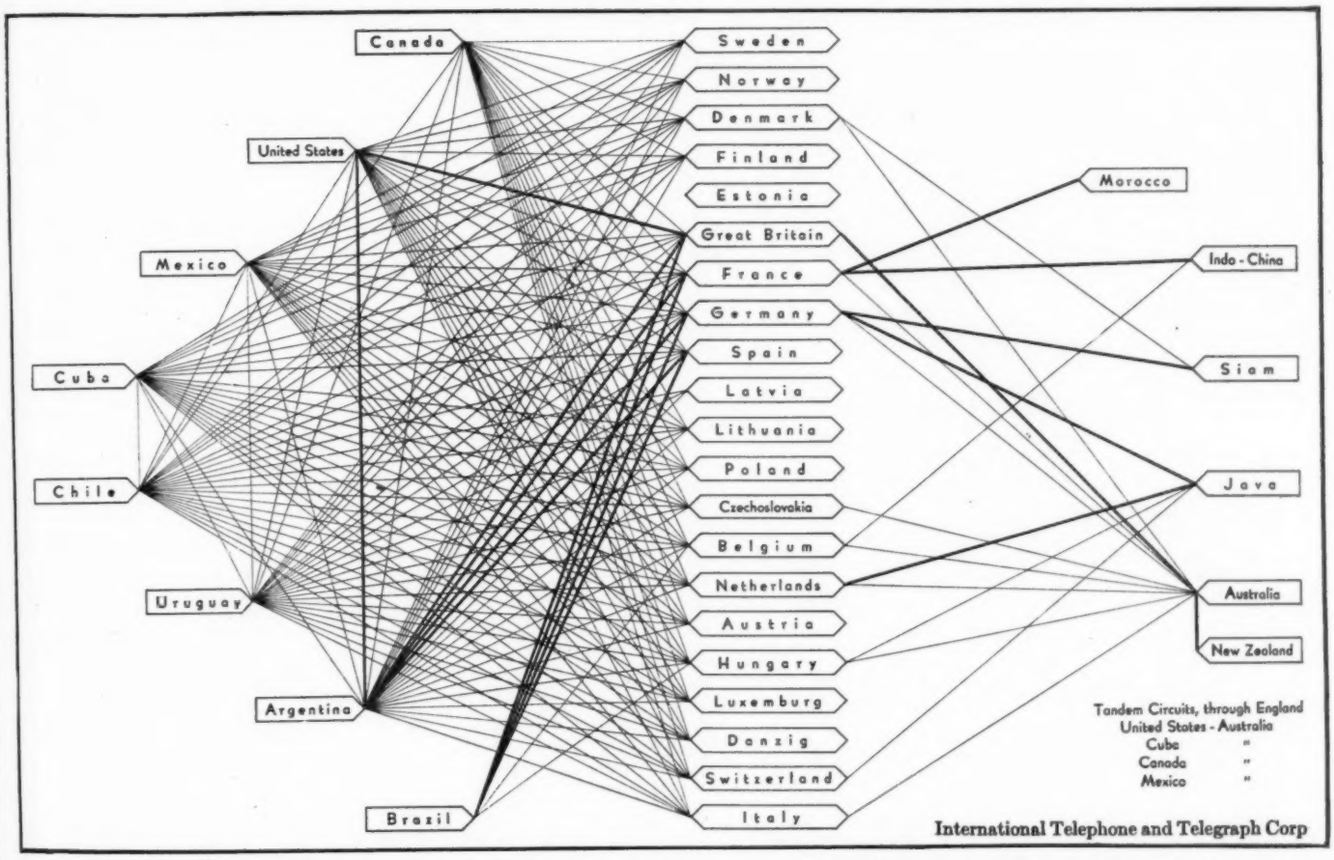
The consolidation of wire, cable, and radio communications, I believe, is absolutely sound and will ultimately come about. If the wire, cable, and radio communication services in this country are consolidated, that will not include the A. T. & T. Co. The A. T. & T., I believe, has its position as a telephone company, rendering the very best of service as a telephone enterprise."

Col. Behn's attitude regarding the combination of domestic corporations engaged in international communications is summed up in this statement to the Senate committee:

"It is my belief that the consolidation of wire, wireless, and cable companies should not only be permitted, but even encouraged; that such consolidations are necessary to promote to the fullest extent the development of telegraph cable and wireless services; that such development will result in incalculable benefit to the American people in their national economic and social welfare as well as in the encouragement of international intercourse and trade.

It is essential that American communications services be placed on at least an equal footing with the coordinated foreign communication services; and that, therefore, the necessary authority should be granted to permit of such mergers of wire companies, as well as wire and wireless companies, providing such mergers will not result in increased rates for the services rendered.

I am firmly of the opinion that if such mergers are permitted, there will not be any attempt to increase rates, but, on the contrary, through the economies which will be brought about and the elimination of unnecessary duplication of plant, the tendency will be to reduce rates and increase the volume of traffic."



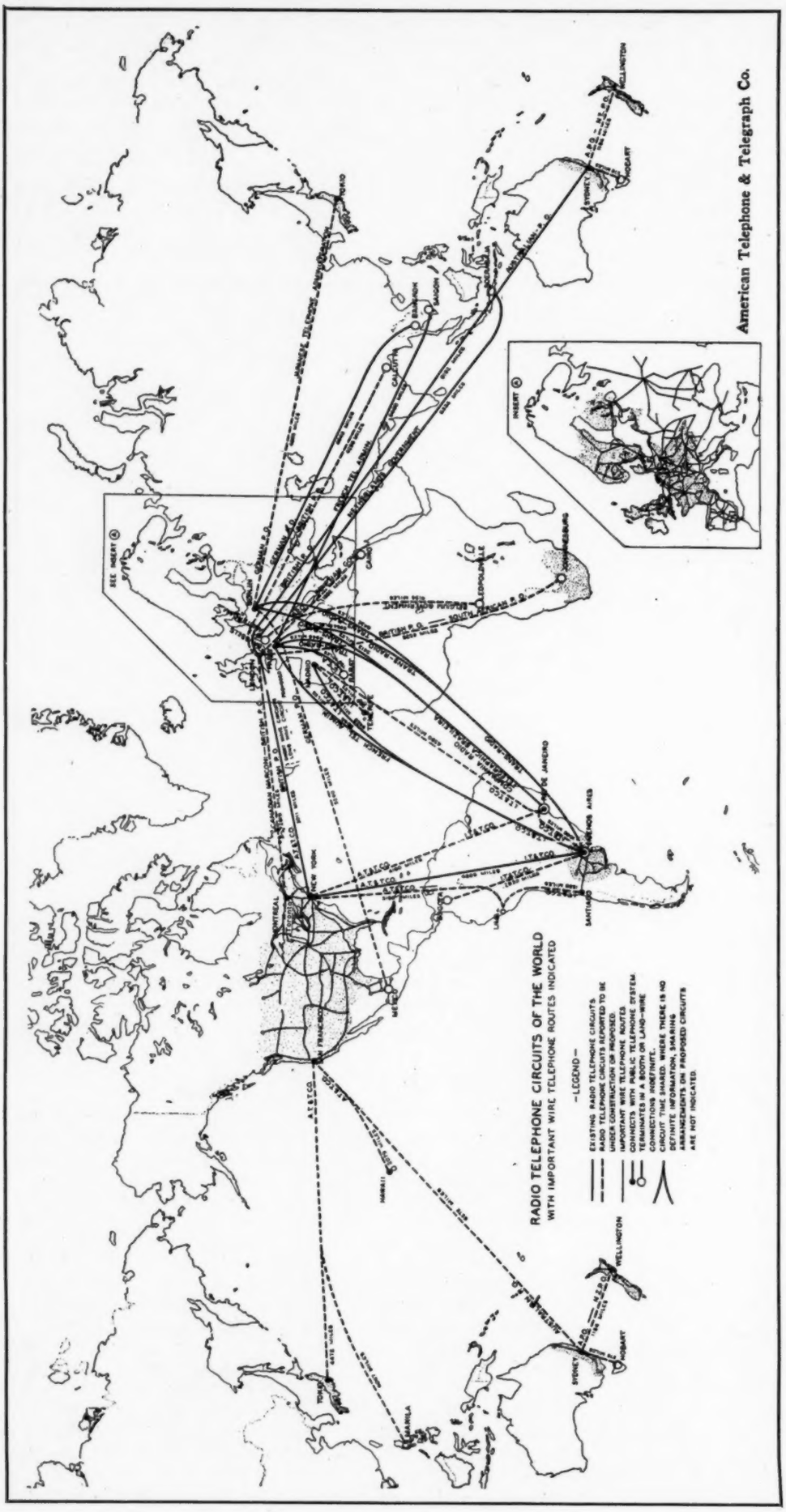
Graphic Presentation of International Telephone Connections Available Through Radiotelephone Circuits, December, 1930. Heavy Lines Are Direct Radio Circuits, Light Lines Are Circuits by Land Lines from Radio Terminals.

Clarence H. MacKay, chairman of the Postal Telegraph & Cable Corp., which is part of the International Telephone & Telegraph Corp., argued:

"We are convinced that cables and radio should not be competitive. Each has its distinct place in the field of electrical communications and each one, properly designed and developed, contributes its part to a well-rounded out comprehensive system of universal communications."

Walter S. Gifford, president of the American Telephone & Telegraph Co., replied rather indifferently to questions concerning international wires and radio, and the proposed purchase of the Radio corporation's communication facilities by the International corporation. He said:

"I am, of course, not familiar with the



Recent Technical Advances in Radiotelegraphy Make Available World-Wide Communication. Chart Giving an Outline of Existing World Telephony, with Some Indication of the Future.

details of their contracts and their problems. My view of the thing would be this: Frankly, I am not particularly impressed with the argument of foreign competition—that that is, a fear of foreign competition. I have to say, however, that I have no first-hand information. All that I have is what I have read, said by both sides on that subject, and my general feeling on the situation.

I am impressed, however, with the fact that there is no fundamental reason that I know of for keeping radio and wires apart. To those of us in the communications business, it is another way of doing the same thing; in some cases a better way, and in some cases not as good a way. To me it is just as logical, or illogical, perhaps, to say that radio and wire can not combine, as it would be to say, in the case of the consolidation of railroads, that a coal-burning railroad could not consolidate with an oil-burning railroad."

Newcomb Carlton, president of the Western Union Telegraph Co., referring to the purchase of the Western Union company by the American Telephone & Telegraph Co. in 1911 and its relinquishment in 1914 at the government's request, said:

"Mr. Vail had the right idea. The consolidation of the telephone and the telegraph, with its elastic uses, was a marvelous conception, and some day will prevail because he saw a long way in the distance. I do not think it will come right away. It will not come so long as I can prevent it. I do not want to combine with the telephone company, for the very selfish reason that I should lose my job."

Mr. Carlton testified strongly in favor of competition in international communications. He declared:

"Nothing could be better than the spirit of competition between the cable companies. And then, quite apart from that, there is a new means of communication — the radio — battling for business, improving its methods of transmission.

While I have no objection

to a combination, in my judgment, if you want to keep the communications business of America healthy and virile and progressive, you want to leave the radio to fight for its own, and the two cable companies to fight for their own; and do not be deceived by talk of the menace of the British merger, because that is nonsense."

W. A. Winterbottom, vice-president, R. C. A. Communications, Inc., told of the importance of world communications to a country and gives something of what the situation is regarding the struggle for control. He says:

"It has been said that trade follows the flag. Actually trade follows communication and transportation. No commerce-laden vessel leaves port unless preceded by many exchanges of international communications. No foreign trade or commerce can be effectively stimulated and created when foreign communications systems are relied upon, and foreign ships utilized to carry our export and import products. Our foreign transportation has been encouraged and developed. Our foreign communications should not be neglected."

Ten years ago, the United States had direct communication by cable with relatively few countries. Today about 30 countries are directly connected by means of radio with this country.

American communication companies have contributed by far the major advances in the art of communications—wire, cable and radio—during the past decade, Mr. Winterbottom declared. "The great foreign communication companies have now acknowledged American supremacy and leadership," said he. "To offset our technical advantage, the majority, during the past year, have entered combines or mergers, the better to combat our world progress.

"So we find that Great Britain, France, Italy and Germany have reached the same conclusion: that in international communications, private operation is preferable to government operation, and that competition between rival companies of the same nationality is no longer economically justifiable, or technically desirable."

Speaking of possibilities and probabilities as to radio, Mr. Winterbottom said: "Those actively engaged in radio communications believe this job is only just begun. Something more rapid, more efficient and less expensive must be produced.

"Facsimile transmission promises some day to completely revolutionize the art of record communication. The R. C. A. has spent over a million dollars on facsimile development and must keep on spending because the present stage of development promises so much for the future."

And somewhat along the same line, David Sarnoff of the Radio Corp. of America commented:

"As radio developed, it produced instrumentalities capable of application not only in the field of telegraph communication, but also in the fields of facsimile, sound recording and sound reproducing, and sight transmission and sight reproduction. Such radio devices have now opened the doors to new opportunities of translating old principles into modern practice. And so you observe an effort now in the direction of facsimile transmission over wire and wireless.

If and when television comes—and I believe it will come because it is already here in experimental form—you may be able some day to merely hold up your message in front of the televisor and have it received on the other side of the globe by an instant impression. And then you will have a new form of communication, and the telegraphing of dots and dashes and paragraphs and sentences and words will belong to the realm of the past."

TUNE IN ON PLAY-TIME

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

On a recent Sunday, a radio speaker related a story about a father and son, that set me thinking about a number of things. When anything is of special interest to me, I try to make a few notes about it as this serves to help me remember an incident.

Perhaps I should not call it a story, because a story has a beginning, then an unfolding plot, and lastly a climax. It would be better to call it a tiny cross-section of a father's and son's lives. But it does suggest an interesting story with a fine moral. This is the story:

"Father," said the boy, just before boarding a train to go away to school, "I am sorry I am leaving home for one big reason: We have been living in the same home for 16 years and I have never felt that I really knew you."

One can imagine that boy as a little lad, wondering why his dad never had time to stop and play with him. Other dads in the neighborhood played with their little boys. Evidently, the play gate between father and son was never opened. If it had been, they would not have grown up strangers to each other. Their loss can never be estimated, but it is an irreparable one.

We work-a-day folks do not seem to realize there is a play gate through which we should go during some time of an ordinary day to learn the art of playing again. Otherwise, the monotony of eternal routine is likely to get on our nerves. Playtime is just as necessary for human beings of all ages as fresh air and sunshine.

Playtime is the time to get acquainted with folks. This old world is a bright and cheery place when we get close enough to the life of our home folks, other folks, and the world in general, to understand one another beneath the surface of living. There is so much of beauty all about us—in home folks, neighbors, hills, valleys, and air.

And air! When we think of all the lovely music, song, and helpfulness of all sorts that come riding through the air, to be enjoyed by just turning a switch, we wonder what more life has stored up for us, to be delivered to us when we have learned how to use and enjoy it.

MORAL: The ringer of the chimes never heard the music because:

"He only knew his duty,
And he did it with patient care,
But he could not hear the music
That flooded the quiet air;
Only the jar and the clamor
Fell harshly on his ear,
And he missed the mellow chiming
That everyone else could hear."

Oklahoma Convention Dates Are Changed for Two-Day Meeting.

Instead of a three-day convention, the Oklahoma Utilities Association has decided to hold the convention to two days, March 10 and 11. The usual reception, ball and banquet will be omitted this year.

There will be a general session on the morning of March 10, with division meetings on that afternoon and all day March 11. W. A. Jones, of New York, chairman of the board of Henry L. Doherty & Co. and of the Cities Service Co., and president of the National Electric Light Association, will be the principal visiting speaker at this year's convention. He will address the general session and possibly both the electric and gas divisions.

On the first evening a demonstration and address by Sergius P. Grace, assistant vice-president, Bell Telephone Laboratories, New York, is planned, to be given at the Shrine Auditorium, and the public is cordially invited.

While minus the usual "frills" the 1931 Oklahoma convention is expected to be the best in the history of the association in practical value to members and visitors.

Here and There in Telephone Work

P. B. X. Operating Current; Storage Battery Voltage Changes.

By John A. Bracken.

Passing an electric current of the proper kind and value through a P. B. X. storage battery which has been discharged until its voltage has decreased to about 1.8 volts per cell, will cause the cell voltage to rise steadily.

Ordinarily the voltage begins to rise immediately and uniformly. If, however, the battery has been left in a discharged condition for a long time, or has been overdischarged, the voltage rises very rapidly for a few seconds of the first minute of charge, and then quickly drops to the normal value; thereafter it begins to rise steadily to the end of the charge.

This rise at the starting of charge is due to the fact that the density of the electrolyte in the pores of the positive and negative plates rises rapidly in the beginning, the acid thus formed being prevented from diffusing; that is, spreading into surrounding electrolyte by the coating of sulphate. As soon as this sulphate is broken through, diffusion takes place and the voltage drops.

As shown in the chart, Fig. 1, the voltage remains almost constant between the points *A* and *B*. At *B*, the voltage begins to rise because the charging chemical reactions are taking place farther and farther in the inside of the positive and negative plates, and the high acid formed by the chemical actions in the plates is diffusing into the main electrolyte. This increases the battery voltage and requires a higher voltage.

At the point marked *C*, the voltage begins to rise very quickly. This is due to the fact that the amount of lead sulphate ($PbSO_4$) in the battery plates is decreasing very rapidly, allowing the battery voltage to rise and thereby increasing the charging voltage.

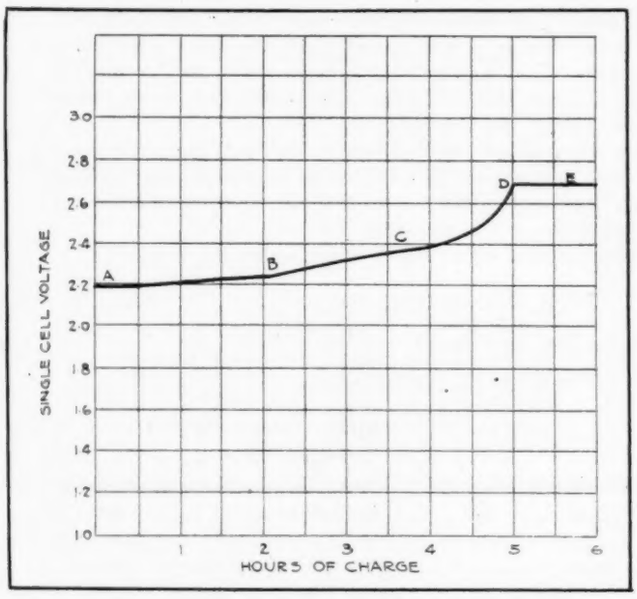
At point *D*, the last portions of lead sulphate are removed, acid is no longer being formed, and hydrogen and oxygen gas are at this stage of the charge being formed very rapidly. The gas forces the last of the high acid out of the plates and, in fact, equalizes the acid concentration throughout the whole battery. Thus no further changes take place, and the voltage becomes constant as at *E*.

At the completion of the charging process and before the charging current is disconnected from the battery, the voltage of each cell is about 2.6 to 2.7 volts. As soon as the charging circuit is opened, the individual cell voltage drops rapidly within a very few minutes to about 2.1 volts. This is said to be due to the formation of a thin layer of lead sulphate ($PbSO_4$) on the surface of negative plates and between the lead peroxide (PbO_2) and the metal positive plate.

The chart, Fig. 2, shows how the voltage changes during the final eight minutes' charge, and how it quickly drops as soon as the charging current is cut off. The final value of the voltage per cell after the charge is disconnected is about 2.15 to 2.18 volts.

If current is drawn from the battery to operate some of the P. B. X. switchboard equipment at the instant the charge is stopped, this drop in voltage is considerably more rapid. At the start of the battery discharge the voltage has already had a rapid drop from the final voltage on charge, due to the formation of lead sulphate as previously explained.

When current is being supplied from the battery, then a sudden drop in voltage is due to the formation of more lead sulphate, the drawing of acid from the electrolyte which fills the pores of the plates, and adds to the internal resistance of the cells.



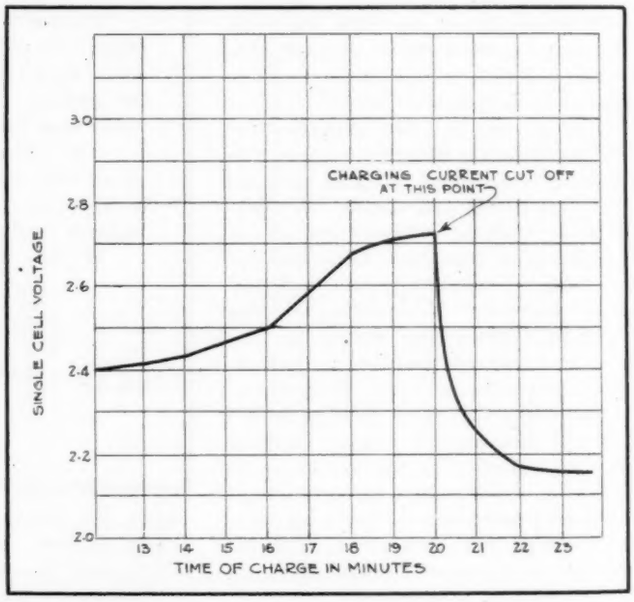


Fig. 1. Voltage Rise as Charge Progresses—Fig. 2. Voltage Changes During Final Eight Minutes of Charge.

No Newspaper; Advertising Broadcast Over Telephones.

At exactly 7 o'clock every Friday evening, every telephone in Des Moines, N. M., and in the surrounding country, rings. The Palace drug store is on the wire with a three-minute broadcast of Saturday specials which go on sale the following day.

The town has no newspaper and this novel method of advertising was resorted to through the cooperation of the Des Moines Telephone Co. The cost is reasonable and the sales results have been excellent, it is reported.

An "Electrical Gearing" Used in an Automatic System.

By Cyril G. Wates,

Maintenance Foreman, City Telephone System, Edmonton, Alberta, Can.

The novel circuit which is shown in the accompanying diagram under the title of "An Electrical Gearing" was designed in a moment of absentmindedness by a former employe of the Edmonton Telephone System and has proved a source of entertainment and speculation ever since.

In spite of popular opinion, Edmonton is not a desolate outpost of the mounted police, situated on the borders of the Arctic. We have a modern automatic telephone system serving 17,000 telephones within the city limits. Many residents, like the writer, have lived in Edmonton for a quarter of a century without ever having seen a dog-team, an Esquimo or over a foot of snow on the ground!

To return to our muttons, the "Electrical Gearing" consists of a pair of ordinary relays. On the left are two wires connected to contacts in a clock which are closed once every second. On the right are two more wires which may be connected to another pair of similar relays. In the train of relays under consideration, there are 32 pairs, a total of 64 relays, which would occupy a space about 12 ins. by 18 ins. In the drawing, Fig. 1, only the first and last pairs are shown, the rest being represented by the dotted lines.

Current is fed to all the relays through a single series relay, shown in the center of the drawing. The back contact of this relay closes the circuit of a gong. It is obvious that this gong will ring only when no relay in the train is operated.

The operation of the circuit is as follows: When the clock contact closes, relay *B* actuates, locking itself through the winding of relay *A*. Relay *A* does not operate at this time because it is short-circuited "ground to ground."

When the clock contact breaks, relay *A* operates and both relays hold in series. When the clock contact closes again, relay *B* is shorted "battery to battery" and falls back, but relay *A* remains locked up until the clock contact breaks, when it also restores to normal. It is clear that as soon as relay *B* operates, the gong will cease to ring and will not ring again until all relays in the chain are restored to their normal position.

Now here is the problem: Suppose the clock contact closed for the first time at midnight, December 31, 1930, when will the gong ring? To save readers the trouble of making the calculation, I will furnish the answer. The gong will start ringing at (approximately) 6:28 a. m. on February 7 in the year 2067, long after the designer of the circuit and all his friends are dead and buried!

In other words, there will always be one or more relays operated for a period of 136 years, 37 days, 6 hours, 28 minutes and 16 seconds, after which all the relays will restore to normal.

The explanation of this extraordinary result, and the possible applications of this unique circuit, will be left to the ingenuity of the reader. We will content ourselves with pointing out two uses to which the circuit has been put in Edmonton.

The first of these was in the old "three-wire" days, when a pair of the relays was used in a repeater to switch the repeating circuit in and out with the "preliminary" and "final" rotary impulses.

The second use was for the purpose of supplying interrupted current at intervals greater than one second. For example, by the use of six relays, a circuit may be interrupted once every eight seconds.

It will be of interest to note that when chains of such relays form an arithmetical progression, such as 2, 4, 6, 8, 10, etc., the corresponding time-cycles are a geometrical progression, 2, 4, 8, 16, 32, etc. Nevertheless, it is easy to design a chain which will operate on any desired cycle. Fig. 2 shows the complete cycle of a chain of six relays. Suppose it is desired to have these relays operate in a five-second cycle.

It will be noted that the "break" of the fifth impulse is the first time at which relay A_1 is operated with relay B_2 normal. If, therefore, we add a pair of "make" contacts to A_1 and a pair of "break" contacts to B_2, connecting these contacts in series with the winding of a slow relay, which in turn serves to break the battery-feed to the entire chain, the chain will be restored to normal after the fifth impulse.

Similarly, for any desired cycle, select the next higher natural cycle and add the necessary combination of springs to unlock the entire chain at the desired moment.

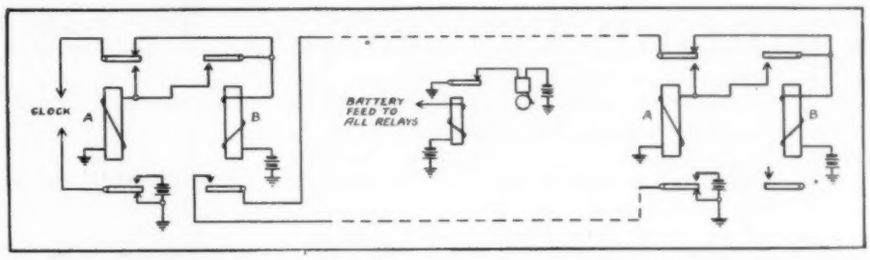


Fig. 1. An Electrical Gearing That Offers a Problem in Possibilities and Probabilities.

CLOCK IMPULSES		Relays A_1	B_1	A_2	B_2	A_3	B_3
1	Make		X		X		X
			X		X		X
	Break	X	X		X		X
		X	X		X		X
2	Make	X		X	X		X
		X		X	X		X
	Break			X	X		X
				X	X		X
3	Make		X	X		X	X
			X	X		X	X
	Break	X	X	X		X	X
		X	X	X		X	X
4	Make	X				X	X
		X				X	X
	Break					X	X
						X	X
5	Make		X		X	X	
			X		X	X	
	*Break	X	X		X	X	
		X	X		X	X	
6	Make	X		X	X	X	
		X		X	X	X	
	Break			X	X	X	
				X	X	X	
7	Make		X	X			
			X	X			
	Break	X	X	X			
		X	X	X			
8	Make	X					
		X					
	Break	All relays normal					

Fig. 2. Complete Cycle of a Chain of Six Relays.

Report Discusses Factors in Employe Magazine Building.

A new report on "Employe Magazines," just published by the policyholders' service bureau of the Metropolitan Life Insurance Co., presents the results of a study of the principles and practices involved in the successful conduct of such internal house organs. It is designed to be of assistance not only to those organizations which are considering the establishment of an employe publication, but to those which, though already engaged in this activity, are interested in the experience of others.

According to the foreword, the survey leading to the preparation of this report was based on a study of more than 200 internal house organs which the bureau receives each month. In addition, much fundamental material was drawn from standard reference books and pamphlets on the subject written by recognized authorities, from surveys undertaken by competent agencies, and from addresses and articles prepared by individuals in charge of conspicuously successful employe papers.

Preliminary considerations relative to the employe house organ, the mechanical structure of the magazine, layout, the editor and his duties, editorial content, and practices followed in distributing the paper, are among the subjects dealt with in detail. The report is illustrated with reproductions of typical house organ covers, well-planned double pages, and the like. A bibliography at the end of the report provides a selected reading list, covering most of the factors entering into the building of the internal house organ.

A limited number of copies of this report on "Employe Magazines" is available for distribution to those executives who are interested in this phase of personnel activity. These may be obtained by addressing the policyholders' service bureau of the Metropolitan Life Insurance Co. at One Madison avenue, New York City.

Painting Creosoted Poles for Visibility

Methods Used to Increase Visibility of Creosoted Poles—Aluminum Paint Provides Greater Visibility in Itself or May Be Used as Priming Coat Over Which Other Colors May Be Applied—Published by Courtesy of Wood Preserving News

By C. H. Lyon.

For some time past some of the utilities and state highway departments have made repeated efforts to increase the visibility of certain of their structures built of creosoted material, where a visibility greater than is naturally obtained is desired.

Various means have been attempted to secure the desired results, one of which has been the use of untreated wooden strips painted white and nailed onto the poles vertically. This method has been followed by the Southern California Edison Co. along one of the public highways in the state.

This method, and a number of others which have been tried, do not seem to have gained popularity, however, possibly because of their cost or the amount of maintenance necessary.

The simplest solution of this problem, of course, would be painting, and approximately two years ago a series of experiments were begun to determine if possible just what might be accomplished in that direction.

Prior to that time, several commercial brands of paint had been tried, with very little success. Of these, four were selected which were thought to give the greatest promise of success: First, a white duco; second, a green lead base paint; third, a green zinc base paint; fourth, an aluminum paint.

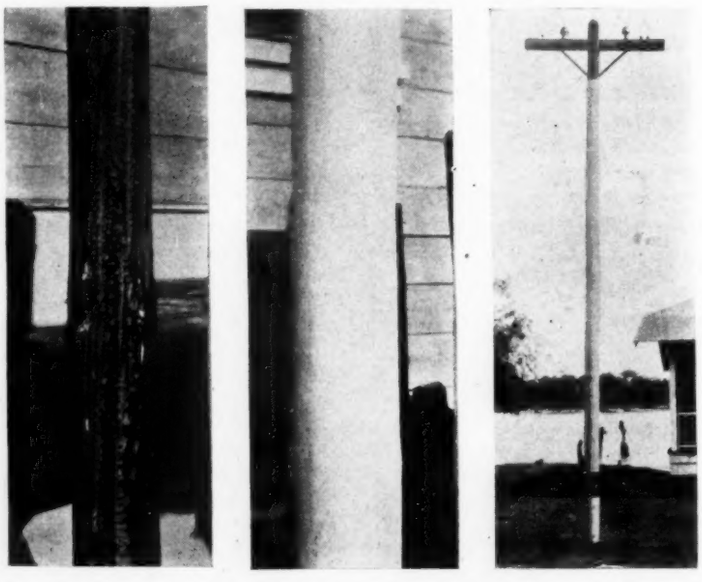
One coat of each of these paints was applied to a creosoted pole, which had been set up in the ground and allowed to dry out for approximately three weeks before painting. After painting, these poles were allowed to stand exposed to the weather and were given frequent inspection.

Within 60 to 90 days all of these paints with the exception of the fourth, the aluminum paint, had begun to show some discoloration. An inspection at the end of two years revealed the following conditions:

The white duco paint was almost entirely obliterated. The surface of the pole was hard, glass smooth, and mottled like a tortoise shell. The green lead base paint was in better condition, the pole showing a smooth surface, free from cracks, with only streaks of the original color. The green zinc base paint showed a condition similar to that of the green lead base paint. In all three cases the paint formed a smooth, dry surface, although the color of the creosote prevailed.

The aluminum paint proved most satisfactory. The aluminum did not discolor, as in the other three cases, and kept its bright silver finish without discoloration, covering the creosote very satisfactorily.

One of the illustrations shows a creosoted pine pole one year after it had been painted with aluminum. Several months after the application of the aluminum a band of red paint was put over the aluminum, about three feet above the ground line. This band, although slightly faded, is still easily discernible.



On Left, Creosoted Pole Two Years After Painting with White Duco Paint. Note Discolored, Mottled Appearance; Poles Painted with Green Lead Base and Zinc Base Paints Showed Somewhat Similar Discoloration—Center, Creosoted Pole Two Years After Painting with Aluminum Paint—Right, Creosoted Pole One Year After Painting with Aluminum Paint.

Painting of material with aluminum should be done in the field after the structure has been erected and has had a chance to dry from two to four weeks, for a satisfactory job is not obtained when the material is painted directly after coming from the treating cylinder. Material treated by an empty-cell process is painted more successfully than that treated by the full-cell process, as it gives a quicker drying surface and can be painted more quickly with less danger of blistering.

The Aluminum Co. of America suggests the following for mixing aluminum powder for painting creosoted material:

"The vehicle should be a hard dry long oil, varnish type, containing 50 per cent by weight of non-volatile oils and gum. The ratio of the oil to gum should be approximately three to one (in other words, about a 40-gallon varnish).

"The major portion of the vehicle should consist of heat-treated China wood oil, and the remainder heat-treated linseed oil. It should set to touch in about two hours and dry hard in 12 hours. It should have highly efficient 'leafing' qualities when mixed with 2¼ pounds of standard varnish albron per gallon. The paint should be mixed on the job and used very promptly."

Since the starting of these experiments, the Oklahoma State Highway Department has been painting cresoted posts with aluminum, and the Kansas State Highway Department adopted similar practice the past year. The Texas State Highway Department more recently painted some of its highway posts in this manner.

Latest Telephone News From England

During Last 10 Years Telephones Have Doubled in Europe—Sir Alexander Roger Comments Upon Telephone Situation in England; Compares Increase With That in America—Various News Items Include Recent Development

By TELEPHONY'S Special London Correspondent

The chairman of the Telephone Development Association, Sir Alexander Roger, who is also chairman of the Automatic Telephone Mfg. Co., Ltd., International Automatic Telephones, British Columbia Telephones, Anglo-Portuguese Telephone Co. and other companies closely connected with the telephone cable industry, had some very interesting things to say in his end-of-the-year review of the telephone situation over here on the occasion of the annual general meeting of the association.

He made it clear, once again, that optimism is the keynote of the industry, a very welcome note in these days of prevalent gloom and timidity. He recommended, to anyone who might still entertain doubts as to the future of the telephone business, a study of the latest official statistics of telephone growth.

Owing to the notorious lethargy shown by many European administrations in compiling and furnishing their returns, these figures are a full 12 months out of date and record the position only up to the end of 1929. They reveal, however, a world total at that date of 34,500,000 telephones in use, as compared with 27,750,000 in 1924 and 20,750,000 in 1919.

During the last 10 years Europe had succeeded in doubling her telephones with 10,500,000 in use at the end of 1929. During the same period, Sir Alexander Roger pointed out, America, with 22,500,000 telephones in service, had increased her 1920 figure by 50 per cent.

Though the percentage rate of growth for Europe as a whole (over 8 per cent in 1929) was distinctly encouraging and was higher than in America, it was noteworthy that America, with a much higher telephone density, is still adding more telephones to her system year by year than is being done by all the administrations in Europe put together, a point which disposes effectively of the gloomy prognostications about approaching saturation point which from time to time make themselves heard, even over here where emphasis should rather be made on the under-development of communication systems.

Especially must we beware, said Sir Alexander Roger, of over-complacency. We may derive satisfaction from the reflection that we, too, have doubled our telephones (989,000 to 1,937,000) in the last decade; that we can communicate with over 90 per cent of the world's telephones, with most countries in Europe, with North and South America, Canada, Australia and with ships at sea; that London is establishing itself as the switching center of a telephone system that must, before long, extend to every corner of the civilized world. But the fact remains that we are still tenth on the list.

The development of our telephones is subjected to the handicap of an administrative system of which the central feature is parliamentary and treasury control; the telephone business of the post office should be autonomous and conducted on lines similar to the British Broadcasting Corp., the Central Electricity Board and other analogous undertakings.

Sir Alexander Roger, Who Retired As Chairman of the Telephone Development Association After Six Years of Strenuous and Constructive Work, Was Given a Testimonial of Appreciation at Annual Meeting.

The presentation made to Sir Alexander Roger on this occasion—he is retiring from the chairmanship of the association after six years of strenuous and constructive work—affords proof of the deep and warm appreciation felt by all branches of the telephone manufacturing industry in Great Britain of the value of his work in the field of telephone development.

It is beyond question that his wise control of the activities of the association has been equally appreciated by the British Post Office; it has not only brought the association into a unique position of influence and helpfulness in its immediate sphere, but has also definitely aided the growth of the telephone habit over a far wider area. Telephone men all over the world will undoubtedly join in the present chorus of congratulations to Sir Alexander and wish him continued success in the industry in which he is such an active and distinguished protagonist.

The new chairman of the association is Llewelyn B. Atkinson who is a past president of the Institution of Electrical Engineers and director of the Cable Makers' Association.

Thanks to America.

America contributed a full share to the success of the opening of the Schoolboys' Exhibition which was inaugurated on New Year's day at Olympia by the Lord Mayor of London. The speech of the Lord Mayor was transmitted by trunk telephone lines and radio to Calgary, 6,000 miles away, where Mr. Bennett, the prime minister of Canada, was listening, and he, in turn, addressed the audience at Olympia.

The transmission and reception were excellent, and the feeling shared by all present was that the greatest possible credit was due to the American telephone engineers who were responsible for the very excellent work by which the long "pull" from Calgary was so successfully managed at very short notice.

Calling the Majestic.

For half an hour on the Friday and again on the Saturday visitors (preferably schoolboys) to the exhibition were invited by the Telephone Development Association to call up by telephone from their stand any friends they might have on the Majestic, which was then about half-way across the Atlantic—a continuation of the policy of "catching them young," which the Telephone Development Association consistently preaches and practices.

Among the passengers on the Majestic who spoke to the boys was Count John McCormack, the well-known singer.

Automatic telephones with the movements of their works displayed through conveniently inserted glass windows also formed a part of the association's exhibit which appeared to make a strong appeal to the interest of the modern schoolboy.

The Talking Newspaper.

An enterprising French woman, Mme. Paul Depuy, who owns two great French newspapers, has created what might be described as the first talking newspaper. If any telephone subscriber wishes to hear the latest news, all he has to do is to ring up Provence 99.09, when he will hear a voice reading a summary of the very latest news. The number is automatically cut off after three minutes, but can be rung up again whenever it is wanted.

The office of the talking newspaper is in

the "Petit Parisien" building. Relays of readers recite the news throughout the 24 hours to the large number of people who are taking advantage of the service, which is entirely free except, of course, for the telephone fee.

The Year's Telephone Progress.

The official estimate of the number of telephones at work in the post office system at the beginning of the new year is 1,958,000—an increase for the past year—a period of unusual trade depression—of 110,000 telephones.

This total, with the addition of an estimate of 39,000 for the systems of Hull, Guernsey and Jersey (which manage their own telephone systems) and for the railway and other private telephones admitted to exchange facilites, brings the total number of telephones in Great Britain to a figure just short of two million—1,997,000.

The detailed figures, when available, may perhaps show that the two-million stage has already been passed. It will at any rate certainly be reached during January. During the year past, 230 telephone exchanges have been added to the system, giving us now a total of 4,836 exchanges.

Telephone Retirement.

A notable personality in the British telephone world, W. T. Leech, C. B., retired at the close of 1930 from the position of director of telegraphs and telephones after 45 years' post office service. The greater part of his long period of service was with the telegraph section—it was indeed only in the middle of the last decade that he was switched over to the telephone branch, there to serve an apprenticeship before assuming the office of director of the two services.

His ready adaptability and savoir faire, however, have enabled him to fill the position with distinction to himself and to the great benefit of the telephone service in this country.

L. Simon succeeds Mr. Leech as director of telegraphs and telephones.

The Value of Personalized Service

Salesmanship Defined as Ability to Persuade People to Want What They Already Need—Real Foundation of Business Is Confidence of Public—Address Before the Annual Traffic Conference of the Illinois Telephone Association

By Miss Ruby Green,
Special Representative, Community Telephone Co., Chicago, Ill.

Business today rests largely upon demand, which may be stimulated by salesmanship. The right kind of salesmanship means success, and the chief ingredient of success is service. Not so long ago there was no such thing as a science of business or salesmanship, but today this is recognized everywhere and taught in schools and colleges. Business today demands that its leaders be trained in the psychology of selling.

Salesmanship is the ability to persuade people to want what they already need. When we analyze that sentence, we discover that *want* is one thing and *need* something entirely different. I may want an airplane, or an automobile that will travel 100 miles an hour, but I do not need them. On the other hand, everybody needs an education, but everybody does not want an education.

Most of us want a good time, and there should be a time for play as well as work; but what most of us actually need is to spend more of our time in preparation for the problems of life. Salesmanship is the ability to change human needs into human wants—and in our business that is a telephone.

A business to exist must profit. To profit, it must serve. To attain any great success, it must render a service so unusual that our patrons will not only continue their own patronage, but also tell their neighbors about it. Service may be defined as: Giving our public what they need when they need it, and doing it cheerfully.

Every employe is a potential salesman, and personal contact with the subscriber may be of great value if the employe is sufficiently interested to use the opportunity. A smile, a kind word or a friendly greeting, all help to personalize our service.

"Good Will Is One of the Most Important Assets of Any Business," Says Miss Green. "It Grows Out of the Confidence of the Public."

Good will is one of the most important assets of any business. It grows out of the confidence of the public. Public confidence, in turn, is dependent upon the real service to the community that the business performs. Any business, in order to succeed, must be of real service to the community. To make the most out of our work, we should have a real love for our fellow being.

Another essential is to build up ourselves along with the business. In developing a business, we consider the profit we make today as incidental to the profit we expect to make. It is not enough to know how to get business; we must also know how to keep it and increase it, and this is highly important.

If we are ambitious to make all we can out of today's transactions, regardless of the effect upon the future, we cannot call ourselves business-builders, but business-killers. Business building is based upon mutual benefit, good service and satisfaction.

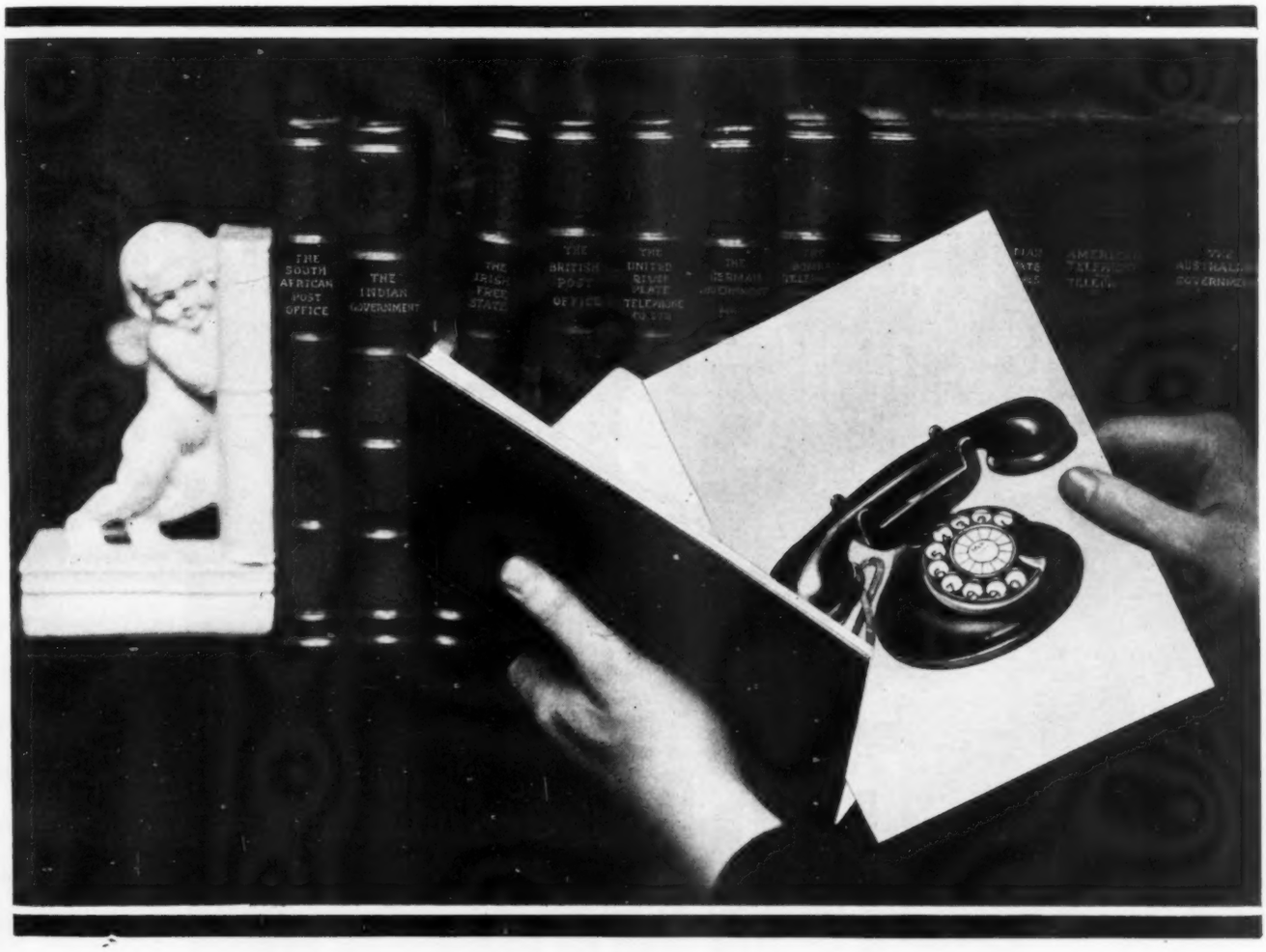
A criticism should be used as an opportunity to dispel the fault-finding attitude and create a new favorable impression of the company, its methods and its employes. Give the complainant a courteous hearing and explanation if possible, and a promise of speedy and satisfactory investigation. Address him by name, if you know it.

Every employe is a representative of the telephone company and should be well liked by the public and able to clear up intelligently any misunderstandings that may arise. It is one of our duties to see that our subscribers are satisfied.

It is often necessary for a utility to ask favors from the public. These will be granted more readily if public relations are good. I wonder if we grasp every opportunity that is offered to create friendly public relations. The time has come when we must get better acquainted with our customers.

The public is the boss. In the last analysis we are not working for any concern—we are working for the public. Our company is merely an umpire. It is working to serve the public, and it hires us to help it. Remember that the public pays our salaries. What the company receives depends upon what you earn, and what you earn depends upon the service you render. It is the application of the Golden Rule in business. "Then give to the world the best you have, and the best will come back to you."

Take a leaf out of their book—

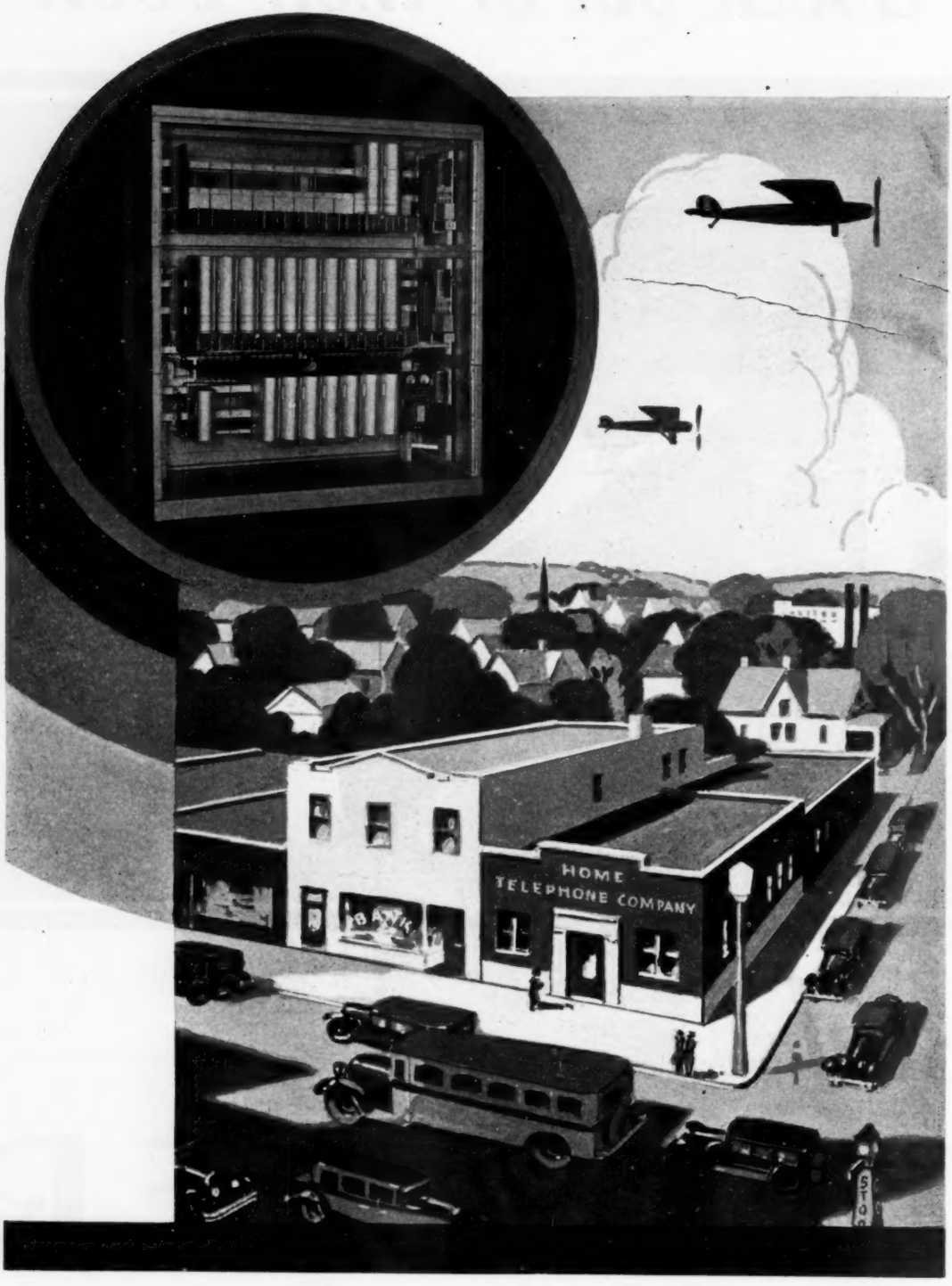

THE SOUTH AFRICAN POST OFFICE
THE INDIAN GOVERNMENT
THE IRISH FREE STATE
THE BRITISH POST OFFICE
THE UNITED RIVER PLATE TELEPHONE CO. LTD.

Instal-

STROWGER

Automatic Telephone Equipment.

Automatic Telephone Manufacturing Co., Ltd.
Strowger Works, Liverpool, England
ASSOCIATED COMPANY
International Automatic Telephone Co., Ltd., London



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DIAL SYSTEMS

GENERAL EXPORT DISTRIBUTORS
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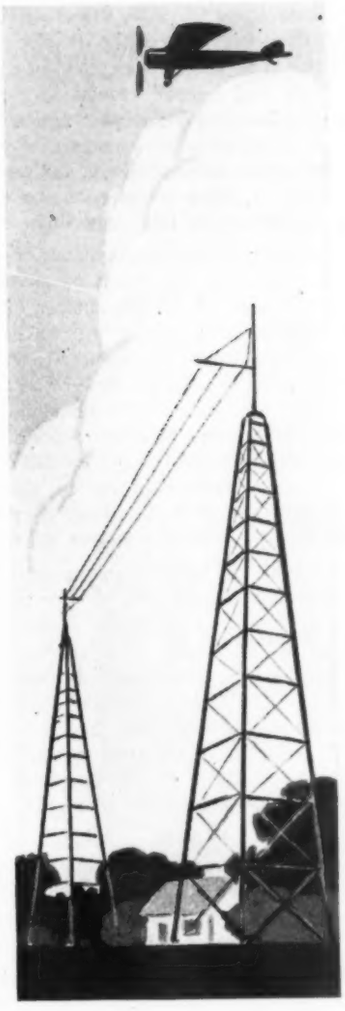

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Sales and Service Offices in All Principal Cities

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Personal Notes from the Field

J. D. Scherck, as sales engineer, is in charge of a new department—that of sales promotion and commercial administration—of the Northern Ohio Telephone Co., Bellevue, Ohio.

Mr. Scherck brings to this new work five years' experience in general telephone work and particularly in sales activities acquired with the Ohio Bell Telephone Co. Graduating from Heidelberg College at Tiffin in the spring of 1925, he entered the employ of the Ohio Bell company at Columbus, spending the next year in the plant, traffic, and commercial departments.

The middle of 1926, he was transferred to Toledo in the telephone sales department and from there went to the division office, assisting in making commercial surveys of the Ohio Bell company towns in the Toledo division. About a year ago he was moved to Fostoria as manager in charge of commercial and sales work, and resigned November 1, 1930, to take up his duties with the Northern Ohio company.

In the past, only a small amount of effort has been given to the work of promoting telephone sales. A certain number of people in every community will have telephones, but above this number telephone service must be sold to the prospect just the same as radios and automobiles are sold. The creating of a new sales department with a personnel in charge will enable the Northern Ohio company to give this important part of its activites the attention and effort which it should receive.

The work of building up prospect lists is under way in each area and the training of the company's employes at each exchange in the matter of telephone salesmanship will be undertaken as rapidly as possible. The sales promotion department properly functioning with the cooperation of all employes should show a marked increase in number of new telephone subscribers added during the next year.

Frank H. Woods, president of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., was elected a director of the Harris Trust & Savings Bank, Chicago, at the annual meeting held January 14.

Minor Corman, has been chosen president of the Oregon-Washington Telephone Co. and also president of the Central Oregon Telephone Co., both of which are units of the Allied Telephone Utilities Co. of Chicago.

The Oregon-Washington Telephone Co., with headquarters at Hood River, Ore., is composed of 16 exchanges and a comprehensive toll line system in Oregon and Washington. The Central Oregon Telephone Co. is composed of three exchanges and a toll line system in Harney and Grant counties, Ore. Operating headquarters for both companies will be at Hood River.

Beginning in 1901 and continuing until 1909 with the Bell companies in various capacities in the Central and Southwestern states, Mr. Corman resigned to accept a position with the Central Home Telephone & Telegraph Co., Louisville, Ky. In 1912 he became general superintendent and engineer for that company, serving in that capacity for seven years.

Minor Corman, Well-Known Telephone Man in Central and Southwestern States, Is Now President of the Oregon-Washington and Central Oregon Telephone Companies with Headquarters at Hood River, Ore.

In September, 1919, Mr. Corman made a connection with the Kellogg Switchboard & Supply Co., which was continued as district sales manager in the South Atlantic states until 1928 at which time he was transferred by the Kellogg company to Dallas, Texas, to open a district sales office for the southwestern district. In September of last year he accepted a position as general manager for the companies of which he is now president.

Kenneth L. Lawson has been appointed sales engineer for the Lincoln Telephone & Telegraph Co., Lincoln, Neb., on the staff of Commercial Superintendent W. E. Bell. Mr. Lawson has been with the company but three years, entering service as a solicitor following his graduation from the University of Nebraska. He later filled the posts of commercial agent and assistant commercial service representative.

Biography.

H. J. Pettengill, former president and former chairman of the board of directors of the Southwestern Bell Telephone Co., died in St. Louis, Mo., on January 12 at the age of 79 years. He retired from active telephone work three years ago.

Born at Brunswick, Me., April 8, 1851, Mr. Fettengill learned telegraphy by practicing at the local telegraph office while attending public school. In 1870 he became operator for the Western Union Telegraph Co. at Augusta, Me., and four years later was made night chief operator at Boston, Mass. It is reported that he worked side by side with Thomas A. Edison in this office.

During the next few years, he was connected with various telegraph companies in the capacity of manager or superintendent.

In 1899, he resigned as superintendent for the Bankers and Merchants' United Lines and the Postal Telegraph companies in New England, in order to take up telephone work. He became vice-president of the American Telephone & Telegraph Co.'s subsidiaries operating in Ohio, Michigan, Wisconsin, Minnesota, the Dakotas, Arkansas and Texas.

In 1905, Mr. Pettengill was made president of the Northwestern Telephone Exchange Co. and of the Southwestern Telegraph & Telephone Co., the latter operating in Texas and Arkansas. He was located at Dallas, Texas, for several years, being transferred to St. Louis in 1911.

With the formation of the Southwestern Bell Telephone Co., St. Louis, Mo., in 1917, Mr. Pettengill was made its president. On September 12, 1919, he became chairman of the board of directors of this company, serving in that position until his retirement in June, 1927. He was still active in civic affairs when his health failed. He was seriously ill for several weeks before his death.

Among the organizations which Mr. Pettengill headed during his life in St. Louis were the New England Society of St. Louis, the Society of Colonial Wars, the League to Enforce Peace, the Missouri Society of the Sons of the Revolution and the Society of Mayflower Descendants. As president of a branch of the Telephone Pioneers of America he was active in preserving documents and appliances of the early days of the industry.

Mr. Pettengill was a direct descendant of John Alden and Priscilla Mullins of the Mayflower group and also was descended from George Soule and Francis Cooke of the Pilgrim party.

Making his own way to a prominent position among the stern business men of New England 30 years ago, and serving as an executive when the telephone business was uncertain, Mr. Pettengill's career was one of honor and distinction.

Unique Telephone Exchange in Indiana

Small 50-Line Home-Made Magneto Switchboard in Exchange in Eberfield, Ind., Has Several Unique Features—Extension Bells Used in Place of Drop Signals and Lines Terminate in Plugs—How Connections are Established

By W. H. Beck,

Secretary-Treasurer, Indiana Telephone Association, Indianapolis, Ind.

Down in Warrick County, Indiana, where, according to some of the old settlers, the summer's drought was so severe that when rain finally came ducks had to be taught to swim, lies the little coal mining village of Elberfeld. Counting from March up until late August there had been only two small showers, and it became necessary to haul water for 30 miles to fill a large cistern which served as the temporary water supply of the town.

Despite this hardship, the men folks of the 500 inhabitants continued their work in the Elberfeld mine, which supplies some of the coal for the city of Evansville, some 15 miles to the southwest. Others worked their farm land as best they could; and all the while the little telephone exchange continued to spread the news of the community to its 375 subscribers.

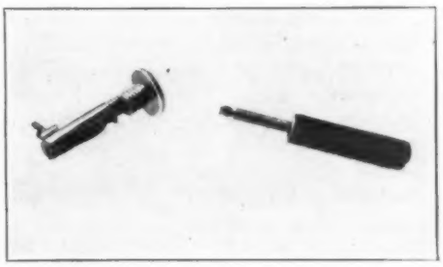
But it is not of this town of Elberfeld, nor its coal mine nor its drought that this story is to be about. The telephone exchange with its unique central office equipment is to be the main subject matter.

About 25 or more years ago, when the need for telephone service in this little community was first felt, a small company was organized on the mutual basis. Kenneth Norcross, now president of the company, does not remember much about the first days of the company, nor does he know about the original equipment. Today, a modest cottage serves as the central office and the front room houses the exchange equipment.

No one seems to know just when this switchboard, which is all home-made, was cut into service but it is safe to say that tables dealing in life expectancy of telephone equipment have been fooled again. The main board consists of the regular type, one-position magneto cabinet and is equipped for the operation of 50 lines.

On the face of the board 47 jacks are installed, and for each of these jacks there is a single conductor plug, as shown in the illustration. There are no drops or visible signals, but in their stead are 47 extension bells arranged along the wall of the room. There is one of these bells for each line, and each bell is so toned that the operator must use her sense of hearing to determine which line is calling her.

One the keyshelf is one master ringing and listening key, and the operator has one answering and ringing cord and plug. The jacks, which are quite far apart—space being left in between for a card bearing the number of the associated line—are



Single Conductor Plug Used with Home-made Jacks in Which Valve Stems from Automobile Inner Tubes Were Utilized.

from the valve stems of automobile inner tubes. A portion of the stem has been cut away and a piece of spring steel, which forms the contact with the plug, is fastened on by a small stove bolt. The plugs, single conductor, are of brass with wooden handles.

In handling a call the operator follows this procedure: A gong rings; the operator, whose ear is well trained, knows which one of the 47 lines is calling. She plugs her answering cord in the line jack with a number corresponding to that of the calling line and greets the calling subscriber with a pleasant "Number, please?"

After receiving the order, the operator removes her plug and in turn inserts it into the jack of the called line and rings, using the common ringing key which connects the hand generator to the operator's answering cord. When the called subscriber answers he is directed to wait until the permanent connection is established. The operator then removes her answering cord and plug and inserts in the called line jack the plug corresponding in number to the calling line. The connection is now complete and conversation begins.

To supervise the line, the operator connects her plug to the jack of the line originating the call, and by making these tests from time to time, she ascertains when the conversation has been terminated.

There seems to be never a thought of labor trouble in the traffic department of the little company. Mrs. Ella Ruckman is the operator and, with the help of her able assistants, renders 24-hour service. Mrs. Ruckman is the mother of 13 children, 11 of whom are living. It is presumed that many of these children have been schooled to know the sound of the bells and to efficiently handle the switchboard.

Sometimes when household duties press, the board is left momentarily unattended. On such an occasion with the mother in

The 50-Line Home-made Magneto Switchboard with Extension Bells Instead of Line Drops

the kitchen and another member of the family in the yard, a bell sounded. The person in the yard called in, "Mother, the 24 line is ringing! Can you answer it?"

The outside plant is composed of grounded lines, all open wire. The construction work has been very well done. Robert Johnson, a stockholder of the company, does most of the work on the lines; and fitted himself for his task by studying a correspondence course in telephony.

This plant, unique in construction and operation, has withstood the attacks of the elements, years of constant wear and the march of progress. The quality of service given is very creditable, and the spirit of those associated in its operation is excellent. It is the only one of its kind in Indiana—perhaps in the nation—and warrants a visit from any one interested in telephony.

Nebraska Has Attractive Program for Its Annual Convention.

A feature of the annual convention of the Nebraska Telephone Association, which will meet for three days in Lincoln beginning February 10, will be the program on the afternoon of the second day, which will be under the direction of the national association, with F. B. MacKinnon, president, presiding.

He will discuss the opportunities for telephone service, the necessity of a general commercial campaign and the desirability of keeping the public informed of its needs and importance. H. N. Faris, technical engineer for the United Telephone Co., of Abilene, Kans., will present the problems of plant construction, maintenance and transmission; and R. A. Lumpkin, president of the Illinois Southeastern Telephone Co., of Mattoon, Ill., and president of the Illinois Telephone Association, will tell how it was possible to increase revenues and service in Illinois.

An important part of the first day's discussion will be the change in accounting practices that the accounting department of the state railway commission is proposing, which includes a reclassification of companies and accounts. I. J. Devoe, former commission accountant, but now auditor for the Lincoln company as well as chairman of one of the accounting sections of the national association, will participate in the discussion.

Entertainment features include an address Tuesday evening by A. G. Burch of the Northwestern Bell Telephone Co. on transoceanic telephony, and the banquet and entertainment Wednesday evening. The complete program follows:

TUESDAY, FEBRUARY 10, 1:30 P. M.

"Welcome to Lincoln," by Mayor Don L. Love, of Lincoln.

Response to Address of Welcome, by J. W. Richmond, manager Cuming County Independent Telephone Co., Wisner.

Annual Report of Treasurer, by W. E. Bell, Lincoln.

Annual Report of Secretary, by Geo. M. Kloidy, Lincoln.

"Treating Methods and Line Characteristics of Creosoted Pine Poles," by R. E. Meyers, chief chemist, International Creosoting & Construction Co., Galveston, Texas.

"Commission's Revision of Accounts," discussion conducted by L. W. Kemmer, chief accountant Nebraska State Railway Commission, and I. J. Devoe, chairman, S. W. section, accounting division, U. S. Independent Telephone Association.

Appointment of Convention Committees.

TUESDAY, FEBRUARY 10, 7:15 P. M.

Illustrated Address, "Transoceanic Telephony," by A. G. Burch, information activities supervisor, Northwestern Bell Telephone Co., Omaha.

WEDNESDAY MORNING, FEBRUARY 11, 9:30 A. M.

President's Address, by C. L. Kelly, North Bend.

"The Couzens Communication Bill," by Hugh H. Drake, commissioner, Nebraska State Railway Commission, Lincoln.

"Where Do We Go Now?" by Frank D. Tomson, director Woods Bros. Corp., Lincoln.

"World Wide Toll Service," Paul Bunce, general traffic manager, Northwestern Bell Telephone Co., Omaha.

"Earnings and Their Relation to Financing," by H. W. Potter, assistant treasurer, Lincoln Telephone & Telegraph Co., Lincoln.

WEDNESDAY AFTERNOON, FEBRUARY 11, 1:30 P. M.

Program under the direction of the U. S. Independent Telephone Association. F. B. MacKinnon, president, presiding.

"Maintaining the Prestige of the Telephone Company," by F. B. MacKinnon, Chicago, Ill.

"Coordination of Commercial and Plant Programs," by Harry N. Faris, technical engineer, The United Telephone Co., Abilene, Kans.

"What We Did in Illinois," by R. A. Lumpkin, president, Illinois Southeastern Telephone Co., Mattoon, Ill.

General Discussion.

Report of Nominating Committee and Election of Officers.

WEDNESDAY, 6:30.

Annual banquet, entertainment extraordinary, followed by dancing.

THURSDAY MORNING, FEBRUARY 12, 10:00 A. M.

General Discussion.

Report of Auditing Committee.

Report of Committee on Resolutions.

Unfinished Business.

Meeting of Board of Directors.

Construction Program for 1931 of Indiana Bell Telephone Co.

A construction program involving the expenditure of $5,821,000 by the Indiana Bell Telephone Co. in 1931 was announced on January 22 by President James F. Carroll, after a meeting of the board of directors.

In making this announcement, President Carroll said: "Our 1931 construction budget is part of a three-year program which will involve, according to our present view, an expenditure during the three years of nearly $18,000,000. Although we do not discount the seriousness of the depression we have been passing through, we feel that there are unmistakable signs of a gradual, but steady, recovery during this year; and this together with our unshaken faith in the future of Indiana warrants, in our judgment, the program we have adopted."

The company's 1931 program includes $1,200,000 for buildings, $800,000 for central office equipment $1,076,000 for exchange lines and $715,000 for toll lines.

Included in the $1,200,000 planned for buildings, $1,000,000 is for the new general headquarters building in Indianapolis. This building, when completed by late 1932, will have cost about $1,850,000.

Approximately $250,000 out of the $800,000 apportioned for central office equipment will be expended at Indianapolis for additional toll and local apparatus. The remainder will be spent at the various exchanges of the company at other places in Indiana. Notable among these points outside of Indianapolis at Kokomo, where the company will convert its exchange to dial service. The work of installing the dial equipment in a new building there is now in progress.

The $1,076,000 planned for exchange lines will provide for additional inter-office trunk cables between the exchanges of the company in Indianapolis, material improvement in the cable distribution system in various places throughout the state and general replacements and renewals.

The expenditure of $715,000 in toll lines largely involves the Indiana company's proportionate expense in the intercity toll cable projects of the long lines division of the American Telephone & Telegraph Co. in Indiana.

In speaking further of the program, Carroll said: "In authorizing this construction our board has been guided by its best judgment as to the actual requirements of the business, but we are also hopeful that an expenditure such as this in Indiana will play an important part in the relief of the unemployment situation and in the stimulation of general business conditions."

Prices in the Metal Markets.

New York, January 26: Copper—Quiet. Electrolytic, spot and future, 9¾@10c. Iron—Steady; No. 2, f. o. b. eastern Pennsylvania, $17.00@18.00; Buffalo, $16.00; Alabama, $10.50@14.00. Tin—Easy; spot and nearby, $25.75; future, $25.95. Lead—Quiet; spot New York, $4.75; East St. Louis, $4.55. Zinc—Quiet; East St. Louis spot and future, 4.02@4.05c. Antimony—7.37@7.50c. Quicksilver—$104.

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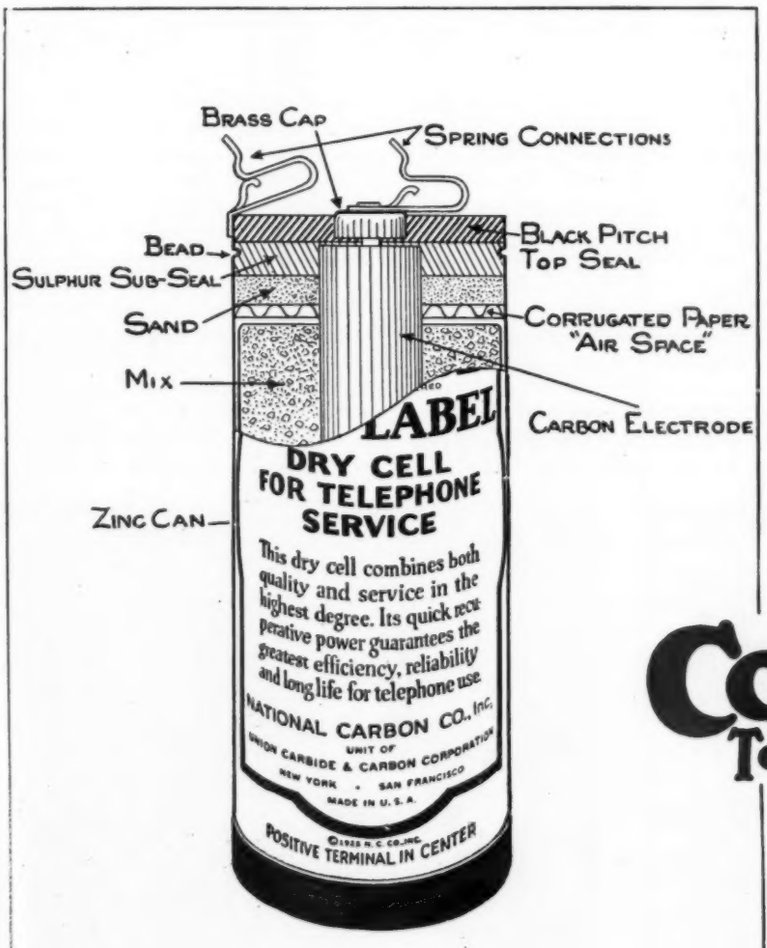
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Northern Ohio Exchange Modernized

Telephony an Important Factor in Commercial Life of Oak Harbor, Ohio—Engineering Problem Involved in Changing from Magneto to Universal Switchboard—Details of New Equipment—Increased Business Result of Modernization

By J. C. Snyder,
Sales Engineer, Stromberg-Carlson Telephone Mfg. Co.

One of the most enterprising towns in northern Ohio is that of Oak Harbor. It is located on the Portage River, a few miles distant from Lake Erie, 25 miles west of Toledo and in the heart of the noted fruit section of the state.

Telephone Building of the Northern Ohio Telephone Co. at Oak Harbor, Ohio.

This progressive town of 2,000 inhabitants boasts of a live business men's association, Lion's Club, finest schools in the state for town of its size, five churches, two banks with over a $100,000 on deposit in each, numerous factories, public library, electric light, power and pure water systems, fine homes, paved streets and splendid transportation facilities of two steam lines and an electric line, as well as main highways.

This town is situated in the very center of Ottawa county and is surrounded by the richest agricultural and horticultural lands in the country. It received its name from a harbor on the limpid Portage River which afforded shelter to the ships that carried lumber from its docks to ports on the Great Lakes. With its rich soil, naturally fruit, vegetables, sugar beets and dairy industries thrive as well as the poultry industry.

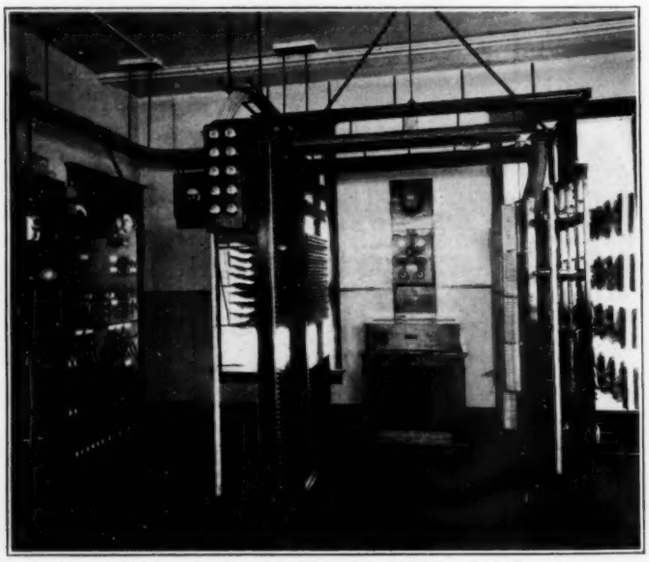
In such a community the telephone plays, and has played, a wonderful part in its life. As in many other towns in the early days of telephony, the pioneer work in Oak Harbor was initiated by a physician, perhaps because of his need for a quick method of communication. The original telephone company was organized by Dr. F. W. Gradolph, who was interested in its development for a number of years. In 1902 the New Ottawa County Telephone Co. was organized with Emery Thierwether as president. The late J. G. Steinkamp was named general manager.

Under their direction the telephone business grew and became a prominent factor in the growth of the town. During the year 1926 the plant was sold to Frank A. Knapp, of Bellevue; and in April of 1927 it became a part of the organization now known as the Northern Ohio Telephone Co. with main offices in Bellevue, under the able management of William C. Henry.

Under the latter company the entire outside plant was rebuilt and brought up to date. The old magneto switchboard had outlived its usefulness, and in 1929 the company made a study in regard to requirements for new switchboard equipment. It was finally decided that a universal switchboard would be best adapted for this particular installation.

This presented an engineering problem, because the switchboard had to be of the lamp-signal multiple-type with lines arranged to take care of the present magneto telephones and central energy telephones. The ringing system on the magneto telephones was four-party pulsating, and harmonic ringing was desired for the new central energy telephones.

It was planned to make the change in telephones gradually, and it was necessary that both ringing systems be maintained until the entire change was made. In addition, it was desired to have the switchboard arranged so that modern features could readily be added at a later date, with little expense and interruption to service. The



Power Board, Relay Rack and Main Frame in the Oak Harbor Exchange of the Northern Ohio Telephone Co.—Stromberg-Carlson Junior Multiple Switchboard Installed in the Northern Ohio Telephone Co.'s Exchange at Oak Harbor, Ohio.

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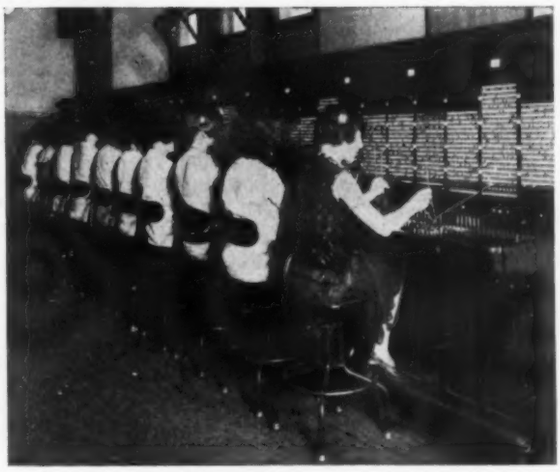

Do/More installation in Owosso, Michigan, exchange. Mr. Melchers, President of the Union Telephone Company, says: "All our offices and all our exchanges are equipped with Do/More chairs — and all our operators, clerks, stenographers find them highly satisfactory."

Do/More Seating *for* Executives, Clerks *and* Operators

THERE is a Do/More Health Chair for every seated occupation. Presidents as well as operators, clerks and stenographers, benefit from the exclusive health features furnished by Do/More.

You can't abuse your body with poor posture all day long, day after day, and expect it to work efficiently. Cramped organs rebel, lungs suffer for air, the heart pulls an uphill load, mistakes pile up and a general breakdown finally results.

Equip your office and exchange with adjustable Do/More seating and you will notice an amazing difference in everyone's vigor. Without cost or obligation we will equip any part of your office or exchange with Do/More chairs for your observation. If you do not see a decided change in efficiency, health and morale you will not be asked to buy. Write for details.

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DO/MORE
IDEA OF SEATING

features were to include machine ringing, reverting ringing tone, flash recall and secret listening.

After making a careful survey, it was finally decided to purchase a junior multiple switchboard as manufactured by the Stromberg-Carlson Telephone Mfg. Co. This new switchboard was installed in the early part of 1930. During the short time it has been in service, it has given most efficient telephone service to the community, with a substantial saving in operating cost.

The number of local lines equipped on the new switchboard is 280. There also are 60 rural and 10 toll lines. The present number of subscribers is approximately 735, which is a good average development for a population of 2,000. The officials of the Northern Ohio Telephone Co. have spared no expense in improvements on either the outside or inside plant to make its service the most efficient. This policy has resulted in a big increase in business since the equipment has been installed, showing that the community does appreciate up-to-date service.

In the well-arranged terminal room, we find all line relays neatly arranged on a relay rack, with easy access for maintenance. A power board is provided for the control of the battery and ringing circuits. On this is mounted a Weston voltmeter and ammeter of ample size so that their scales can be read at a distance. The switches are of standard size and well constructed, with ground-in contacts to assure full contact surface. All switches and meters are mounted on monson Maine slate panels, free from metallic veins and substantially supported on an iron frame.

A tungar rectifier provides means for charging the batteries. This is under control of an ampere-hour meter, which automatically cuts the rectifier on or off at predetermined limits, thus providing even regulation and longer life for batteries. In case of failure of the tungar bulb, an alarm is provided as an indication of failure.

When all the telephones are changed to central energy, thus eliminating the use of dry cells in each telephone, the annual saving on this one item will go a long way in offsetting the carrying charge of the investment in the new equipment.

The switchboard consists of three positions, with calculagraph panels between positions Nos. 1 and 2 for convenience in handling toll in addition to local business. The keyshelves are of the low type, providing a comfortable position for the operators by use of low operator chairs instead of the usual high type.

All lines are arranged in multiple with line lamps associated with the multiple jacks with two appearances of the line lamp. This important feature makes each incoming call available to all operators, and provides means whereby each operator can complete each call without the aid of additional operators or equipment. With this

View Showing Battery Case in the Oak Harbor, Ohio, Exchange of the Northern Ohio Telephone Co.

even distribution of operators' work, it is possible to give fast accurate service with the greatest economy of operation. In fact, with the improved service one less operator was required.

The local management of this plant is in charge of R. C. Dodd. His long experience in the telephone field enables him to provide the citizens of Oak Harbor with a personal telephone service fully in keeping with the ideals of this progressive community.

Offices of Power Company Connected by Private Line.

A private telephone line, hundreds of miles long, is one of the modern conveniences of Carrington, N. D., that few people there know about. The private telephone line, a two-wire circuit, connects all the generating plants and distributing stations of the Otter Tail Power Co. in North Dakota and western Minnesota. The substation at the northeast edge of Carrington is one of the company's principal power distributing points in North Dakota.

The telephone line owned and maintained by the Northwestern Bell Telephone Co., is leased to the power company at an annual rental of $25,000, approximately the same amount of money spent by the Otter Tail company on toll calls before the line was built. The company's advantage, under the new arrangement, is the unlimited use of its private telephone line, enabling its employes and main office to transact all of their interstation business by telephone instead of waiting for letters as was formerly the case.

After storms or accidents that caused line trouble, the Otter Tail concern previously had telephone toll bills as high as $600 or $700 a month at Carrington alone.

The Otter Tail company employes operate their own telephone circuit, ringing one another by code. The switchboard equipment at the Carrington power station is valued at about $2,000. In cases where the operator can not be reached on the station telephone, the call is completed through the city exchange.

The power company's private telephone line starts at Fergus Falls, Minn., and connects with Wahpeton, Jamestown, Carrington, Leeds, New Rockford, Devils Lake, Rugby, Washburn and other intermediate points.

Innovations Adopted by the British Telephone System.

According to an announcement of the Postmaster General of Great Britain, subscription telephone calls, i. e., calls arranged for connection at a specified time daily on a monthly contract basis—are now available to Belgium, Czechoslovakia, Danzig, France, Germany, The Netherlands, Luxembourg, Poland, the Sarre and Spain.

"Day" subscription calls to these countries are charged for at the full day rates and are accepted for connection during the period outside the busiest hours (usually before 10 a. m. and after 4 p. m.). Night subscription calls are also available to all these countries at half the day rates.

In a recent public address, the postmaster-general remarked that the average length of time which the calling subscriber had to wait after taking up the receiver before getting the operator's response was 5.3 seconds for London and 6.4 seconds for the country as a whole.

The post office is at present making arrangements to conduct radiotelephone experiments between its station at Rugby and Japan. If these are successful, a commercial service will be made available with the Japanese Empire as soon as practicable.

The post office engineers have developed a device for insuring secrecy in radiotelephone communication which acts to transpose the speech sounds at the transmitting end and retranspose them at the receiving end. Another device called the "limiter" is designed to prevent damage to the instrument by automatically keeping the energy input, due to a subscriber's voice, to a certain safe maximum.

Australian Figures on Telephones Show Falling Off Recently.

Figures released recently by the telephone branch of the Postmaster General's Department in Australia reveal the fact that the number of telephones disconnected in recent months has exceeded new subscribers. In July, 1930, there were 595 more cancellations than new subscribers; in August the number was 836, September 1,201, and October 1,342. In October there were 3,007 new telephones connected and 4,349 disconnected.

The cancellations are attributed to the facts that business houses are cutting the number of their lines to a minimum and private individuals are economizing by dispensing with telephone service, while in addition, a number of suburban shopkeepers are going out of business.

Pole Preservative Methods.

General.

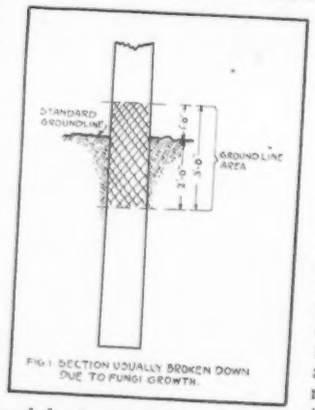
The fact that treated poles are now generally recognized as being more economical over a period of years than untreated poles, is sufficient reason that everyone concerned with the design of wood pole lines should be familiar with the various commercial wood preservative methods.

This data sheet discusses the theory of wood preservation and the three general methods under which the different preservative methods may be arbitrarily divided.

The art of preserving wood by the injection of various toxic solutions into the wood cells was practiced by the Egyptians about 1100 B. C., although it is only in the last 50 years that it has become as popular and as exact a science as it is now.

Wood Pole Decay.

It has definitely been established that wood decay is due to a form of plant life known as fungi which feeds on the contents of the wood cells, ultimately causing the complete disintegration or breaking down of the wood fibre on which the pole is dependent for strength.



Some authorities state that fungi may be divided into two classes: Fungi of a harmful nature, which exist on the lignins and cellulose in the cells and wood fibre; and fungi of the non-harmful type, which live on the sugar and starches and do not damage the wood structure. The theory is advanced that the fungi by means of a chemical secretion dissolves the wood fibre and feeds on the dissolved substance.

Fungi germs are generally present regardless of locality. Once they gain a foothold in a pole, and given favorable living conditions, they will eventually cause the complete destruction of the wood fibres on which they work.

The rate of decay of an untreated pole will depend on the specimen of wood involved and on the moisture and temperature in the area of the pole on which the fungi operate.

The most favorable conditions for the growth of fungi exist at or immediately below the ground line of a pole. Hence, we find most decay concentrated in this section. Fig. 1 illustrates the section usually broken down due to fungi growths.

The thought of insects causing serious damage to wood poles seems absurd to those who have not had to deal with

pole plant damaged in this way. As a matter of fact, pole deterioration due to this cause reaches quite serious proportions in some localities.

The major portion of the damage due to insects is attributed to "termites," also known as "white ants." There are two classes of these ants which are known as the subterranean and non-subterranean types. As their name implies, one type works underground, attacking the poles via their burrows in the earth, while the other works on the portion of the pole above the ground.

Decay and rot are usually associated with the attacks of the subterranean type, as the attacks occur in the groundline section where conditions are most favorable for fungi growth and the fungous spores are carried into the wood structure of a pole on the termite's body.

Damage due to the sub-surface termite is generally not recognizable from external indications.

Termite damage to wood poles has been particularly severe in southern California and government reports state that termites are now found in all but three states; these three states being North Dakota, South Dakota and Vermont.

Wood Preservative Solution.

Pole damage due to decay and insect attacks can be averted or delayed for a long period by impregnation with a suitable chemical solution of the portion of the pole likely to be damaged. This impregnation results in poisoning the wood fibres on which the fungi feeds.

The solutions suitable for guarding against decay due to fungi growth are also effective in repelling and poisoning insects such as termites.

The most common pole preservative in use today, and the only one to have been definitely proved, is creosote. In recent years a number of other preservatives for poles have made their appearance, among which are Wolman salts, Aczol, Zinc Meta Arsenite, as well as several others.

Creosote oil is obtained from the distillation of coal tar and if pure has excellent toxic properties.

Standard specifications for creosote oil for pole preservation recommended by the American Wood Preservers' Association are as follows:

1. Oil shall be distillate of coal-gas tar or coke-oven tar.
2. It shall not contain more than 3 per cent water.
3. It shall not contain more than 0.5 per cent of matter insoluble in benzol.
4. The specific gravity of the oil at 30° Cent. compared with water at 15.5° Cent. shall not be less than 1.03.
5. The distillate based on water-fill oil shall be within the following limits: Up to 210° Cent. not more than 5 per cent; up to 235° Cent. not more than 25 per cent.
6. The residue above 355°, if it exceeds 5 per cent, shall have a float test of not more than 50 seconds at 70° Cent.
7. The oil shall yield not more than 2 per cent coke residue.
8. The foregoing tests shall be made in accordance with

the standard methods of the American Wood Preservers' Association.

A good creosote oil should be neither so thin and volatile as to readily evaporate and leak out of the pole, nor so heavy or full of tar as to prevent adequate penetration into the wood cells of the pole.

All of the reliable wood preserving companies are very exacting in their creosote oil specifications.

If pole preservation by means of the impregnation of creosote oil, or other preservative is to be successful, it is essential that sufficient of the chemical be placed in the outlying layers of wood to insure that toxic action will continue for a number of years in spite of the evaporation and leaching out of the preservative which takes place.

Pole Preservation Methods (Creosote).

There are four methods in use for the treating of poles with creosote oil, which are:

1. Brush or spray treatment.
2. Dipping method.
3. Open-tank method.
4. Pressure treatment.

Inasmuch as the major part of our available pole timber is either Southern yellow pine, western red cedar, or northern white cedar, these species only will be discussed in this data sheet.

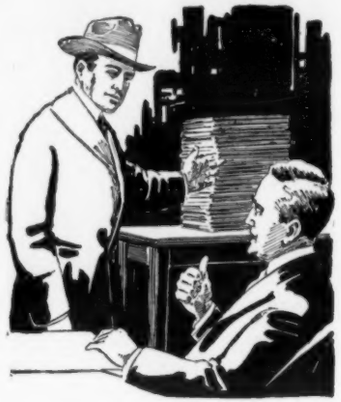
The durability of cedar poles is such that they are subject to rapid decay (from fungi effects) only in the ground line section. Yellow pine, however, is a less durable wood in the untreated state and requires full-length treatment to insure against decay.

Brush or Spray Treatment.

The brush or spray treatment consists in heating creosote in an iron kettle to a temperature of around 170° Fahr. The hot creosote is then applied to the ground line section of the pole (one foot above and two feet below the normal ground line) by dipping the brush in the kettle and flowing the hot creosote over the pole surface. The use of heated creosote is generally confined to the pole yard. However, creosote of the proper grade can be applied cold with good results.

All season checks and openings in the pole should be flushed with the creosote. If this work is done in the pole yard, the butts of the poles being treated should be placed on two old crossarms laid on the ground near the creosote kettle and a shallow catch pan placed beneath the butts to catch the creosote drippings.

A method somewhat similar in its effectiveness consists in spraying the creosote on by means of some form of pressure sprayer. Ordinary hand-operated sprayers with a capacity of one gallon of preservative are suitable for this method. This is somewhat more convenient to use than the brush method and, if properly applied, will insure good penetration into checks and cracks in the pole.



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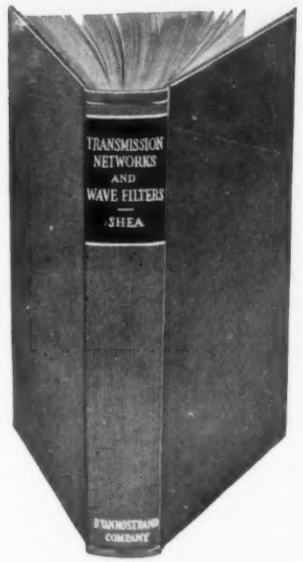
By

T. E. SHEA, B. S., M. S.

Member of the Technical Staff, Bell Telephone Laboratories



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Annual Report of Lincoln, Neb., Company

Year's Operations Provide Small Surplus After Employes and Stockholders of Lincoln (Neb.) Telephone & Telegraph Co., Had Been Compensated and Expenses Paid—Details of Income and Expenses—President Woods' Comments

An increase in exchange revenues of $88,000 and a decrease in toll receipts of $8,500 were reported by the officers of the Lincoln Telephone & Telegraph Co., Lincoln, Neb., to the stockholders at their recent annual meeting. Exchange revenues were $2,191,415, tolls $1,016,572 and miscellaneous operating revenues $67,625, making a total of $3,275,612. This is the third year in succession that total revenues have gone above the three million mark.

Total telephone expenses were $2,650,166, an increase for the year of $61,423. Operating expenses were $1,127,012, an increase of $41,000; current maintenance, $633,466, a decrease of $4,500; depreciation, $670,836, a decrease of $9,000, and taxes, $218,852, an increase of $34,715. Total net earnings were $701,564, and deducting $174,953 for interest and $503,324 for stock dividends, left a surplus of $23,587.

In his address to the stockholders, President Frank H. Woods called attention to the fact that in spite of the more than three million dollars of revenues, after employes and stockholders had been properly compensated and other expenses paid, there remained so meager a surplus. He pointed out that notwithstanding an increase of $34,715 in taxes, the expenses of operation have been kept within prudent limits.

Total telephone expenses were 80.91 per cent of total telephone revenues, as compared with 81.22 per cent for the year 1929. On the other hand, revenues have not kept pace with the investment required to render adequate and satisfactory service.

"The Result of the Year's Operation," Says President Frank H. Woods, "Has Served to Strengthen Our Confidence in the Sound Situation of This Company and the Entire Telephone Industry."

Total telephone revenues, which were 27.96 per cent of average plant in service in 1929, were reduced to 26.70 for the last year.

"We recognize no immediate alarm in these figures," said President Woods. "They point toward the necessity for increases in present rate levels and a wider margin of safety for investors than present rates provide. The situation is accentuated by the further fact that a return of only 5.18 per cent was earned for the year upon the actual value of the property devoted to telephone use.

"The high grade of service which is a public necessity, can be assured only when a company has a credit standing that enables it to finance its requirements on favorable terms. An adequate surplus is necsary to do this. Subscribers to this company's service have been liberally favored by lower rates than generally obtained for like standards and conditions.

The result of the year's operations has served to strengthen our confidence in the sound situation of this company and the entire telephone industry. Occupying a field, which of necessity can serve the public best without competition, we recognize our obligation to render service in a manner calculated to maintain public confidence and support. When properly apprised of its business needs, the public generally has shown only a disposition to extend the necessary cooperation. Efforts towards public ownership of the telephone business in Nebraska have abruptly failed, and there exists today a broad appreciation of the integrity of its conduct."

Mr. Woods, reviewing the general financial situation, said that in Nebraska conditions have been much less unfavorable than in other sections of the country. The state, with a crop of 235 million bushels, ranked second in corn production. The wheat crop of 73 million bushels was well above the last five year average of 55 million bushels. Hay crops were generally up to normal. These large yields have, in spite of low prices, placed Nebraska in the forefront of comparative prosperity.

Nevertheless, the general business depression has been locally reflected in the telephone industry. For the first time in seven years, he said, the company's toll buiness has failed to reach the volume of the previous year. Likewise a slight decrease has been experienced in the number of exchange stations served.

The year's work has produced an important betterment, it was pointed out, in the telephone plant. Many of the principal toll lines have been completely rebuilt, and similar reconstruction of rural exchange lines have placed the pole and wire plant in generally excellent condition. Extended construction of electrical supply lines in the company's territory has demanded a general program for conversion from grounded to metallic service on all rural lines to avoid inductive interference. This work has been carried forward rapidly; and it is expected that before the close of the present year

Earnings:	1927	1928	1929	1930
Exchange revenue	$1,942,326	$2,005,953	$2,093,704	$2,191,415
Toll revenue	855,984	924,682	1,025,214	1,016,572
Miscellaneous operating revenues	66,768	69,998	67,895	67,625
Total telephone revenue	$2,865,078	$3,000,633	$3,186,813	$3,275,612
Expenses:				
Operation	$ 907,083	$1,005,831	$1,086,437	$1,127,012
Current maintenance	552,971	553,170	638,124	633,466
Depreciation	617,100	637,154	679,987	670,836
Taxes	197,725	191,094	184,137	218,852
Total telephone expenses	$2,274,879	$2,387,249	$2,588,685	$2,650,166
Net telephone earnings	$ 590,199	$ 613,384	$ 598,128	$ 625,446
Sundry net earnings	53,899	60,862	50,199	76,118
Total net earnings	$ 644,098	$ 674,246	$ 648,327	$ 701,564
Deduct interest	138,953	134,390	135,186	174,953
Balance net profits	$ 505,145	$ 539,856	$ 513,141	$ 526,611
Dividends (preferred & common)	416,641	433,010	472,919	503,024
Balance for surplus	$ 88,504	$ 106,846	$ 40,222	$ 23,587

Comparative Statement of Earnings and Expenses, 1927–1930, of the Lincoln Telephone & Telegraph Co., Lincoln, Neb.

all grounded or single wire service will have been discontinued.

During the year 1930 the company expended $1,446,612 for new plant equipment. Of this amount, $399,930 were invested in renewing and extending the toll plant; $1,400,094 were used in rebuilding exchange lines, constructing new buildings, and installing new central office equipment; $47,812 were expended for general equipment, trucks, automobiles, etc. The necessary replacement of much existing property was involved in these expenditures. The depreciation reserve was drawn on for $836,632 and $609,980 represent new capital obtained from the sale of securities.

The company operates 137 exchanges four automatic, 102 magneto and 31 common battery. Stations decreased 432 during the year, now totaling 83,139, divided: Business, 18,045; city residence, 41,813 and rural 23,281. Of these 33,853 are common battery, 23,942 magneto and 25,346 automatic. With connecting and service and private line telephones added, the total served is 104,103. The company has almost exactly twice as many stations as in 1912. The average number of employes for the year was 1,417, and the total payroll $1,487,100.

The balance sheet shows assets of $15,167,505, divided: Physical property, $12,903,313; investments, $157,858; material and supplies, $441,534; cash and deposits, $456,485, and current receivables, etc., $1,208,315. The capital stock outstanding is $7,263,475; funded debt, $3,000,000; bills payable, $232,100; current payables, not due, $564,682; depreciation reserve, $2,944,807, other reserves, $30,000, and surplus, $1,132,441.

The stockholders elected the following directors: J. H. Agee, C. N. Beaver, S. H. Burnham, C. E. Codington, Joseph Grainger, L. E. Hurtz, Christian Klem, L. B. Stiner, Charles Stuart, Mark W. Woods, George J. Woods, Thomas C. Woods, Frank H. Woods.

The directors reelected all officers for the year: Frank H. Woods, president; Thomas C. Woods and S. H. Burnham, vice-presidents; C. P. Russell, secretary-treasurer; I. J. Devoe, general auditor, and J. H. Agee, general manager.

Michigan Has 500 Miles State-Owned Telephone Lines.

One hundred and fifty-one fire towers form the state's equipment for detecting forest fires in Michigan. Of these towers, 120 are operated by the forest fire division of the conservation department; 19 are located in state forests, and three in game refuges. One hundred and fourteen of the towers are of the closed type and 37 are of the open type.

The forest fire division now has 500 miles of state-owned telephone lines leading from its towers. During 1929, 78 miles of additional lines were built, and during the past year 332 miles of lines were added.

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Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Ruling on Motions Expected in Chicago Coin Box Case.

An appropriation of $100,000 to continue litigation by which it is hoped the city of Chicago can force refund of about $18,500,000 by the Illinois Bell Telephone Co. to its subscribers was asked of the council finance committee on January 17 by Corporation Counsel Ettelson.

The request was made in a letter signed by Special Assistants George I. Haight and Benjamin Goldstein. It was stated the litigation has resulted in victories for the city which will result in $75,000 a year additional franchise tax and the saving of $2,000,000 a year to subscribers.

Motions on behalf of the city of Chicago to dissolve the federal court injunction protecting the Illinois Bell Telephone Co. in its present coin-box rates and to distribute to subscribers the difference between the present rate and the Illinois Commerce Commission rates ordered in 1923, were scheduled to be disposed of on January 29 by Federal Judges Evan A. Evans and George T. Page, sitting en banc, to hear the telephone case. The case was sent back to the court in Chicago to the U. S. Supreme Court with instructions to make findings on several phases of the litigation.

Hearing Before Michigan Commission on Muskegon Rate Case.

The Michigan Public Utilities Commission on January 15 heard the petition of the Michigan Home Telephone Co. for an increase in its rates at its Muskegon exchange following an appraisal of company property. The company filed its original petition for an increase in December, 1929. An appraisal was ordered last May by the commission.

The company contended that the system of appraisal used by Gerald J. Wagner, special investigator for the state, was wrong in that it included the entire property as a basis for computing rates of the Muskegon exchange.

Mr. Wagner's report to the commission, made public several weeks ago, recommended that the company be allowed an increase of about $30,000, or about 8 per cent on the Muskegon properties and 7 per cent on the entire valuation.

Another point on which the three municipalities of Muskegon, Muskegon Heights and North Muskegon, as well as the Wagner report, disagreed with the company, is on inclusion of long distance tolls as part of the income on which to base equitable rates.

The company proposed an increase of $82,325.44 a year in revenues while the Wagner report recommended an increase of more than $50,000 less, or $30,170 including $3,700 a year for 10 years to pay for the complete appraisal.

Although no decision was made in the case, which was taken under advisement by the commission, it was indicated by a number of the commissioners that they favored inclusion of all the company's properties as a basis for new rate making.

Conflicting Opinions on Method of Determining Rate Increase.

Two conflicting opinions regarding the increase in rates which was granted to the Black River Telephone Co., Lowville, N. Y., by a three to two vote of the New York Public Service Commission were presented to the commission at its meeting last week.

The order granting an increase in rates sufficient to raise the net revenue of the company by $4,000 and to increase the exchange revenues by about 3 per cent, was adopted by the commission through the votes of Commissioners Van Namee, Lunn and Brewster. Chairman Maltbie and Commissioner Burritt opposed the order and a dissenting opinion was written by Chairman Maltbie and concurred in by Commissioner Burritt.

Commissioner Lunn, who voted with Commissioners Van Namee and Brewster in favor of the order granting the increase in rates, was unable to vote on the adoption of an opinion because of a serious accident which occurred shortly after the vote was taken on the order.

The opinion on which the increase in rates was granted has its significance in the method whereby the decision was reached rather than in the amount of increase which is authorized.

This opinion gives controlling weight to reproduction cost in determining the value of the property. It determines the final value of the property at $900,000, which is $90,000 less than the reproduction cost less depreciation at 1929 prices and $238,000 more than the book value of the property.

The dissenting opinion holds that this determination as of 1929 is most unfair, because it is held that the book cost of the property (about $950,000) represents the estimated cost of the property as determined by a company engineer some seven years ago and that such an estimate is, therefore, not too small. The dissenting opinion points that no weight could have been given to actual cost and a value of $900,000 found as of July 1, 1929, if consideration has been given to the decline in prices since 1929 in determining the values as of 1929.

It is, therefore, held by the dissenting opinion that the prevailing opinion unduly emphasizes the reproduction cost and that $900,000 is an excessive rate base.

The opinion on which the increase in rates was based holds that the rates in 1929 gave a reasonable return on the investment of the company but that the company spent about $100,000 improving its service and that it is entitled to a return on this investment and on the added operating expenses due to the installation of a new switchboard to give better service to the present customers.

The opinion points to court decisions to show that "in arriving at the fair value of property used by a public utility for the convenience of the public, the original cost of construction, the amount expended in permanent improvements, the amount in market value of its bonds and stock, and the present as compared with the original cost of construction, must all be considered."

Continuing the opinion says: "In compliance with these decisions, we determine from all the testimony and exhibits received in this proceeding:

"1. That the book cost of the property of the Black River Telephone Co. used in rendering telephone service to the public was in 1929 $950,212; that the depreciation reserve was the amount of $322,388.

2. That it would cost $1,324,187 on the basis of the evidence submitted by the telephone company to reproduce its property at 1929 prices. That this property has depreciated from its reproduction cost now in the amount of $368,683.

3. That there should be allowed for preliminary organization costs the amount of $5,008.

4. That there should be allowed for working capital the amount of $30,000.

5. That as no evidence was submitted as to market value of the bonds and stock of this company, no determination of such value can be made.

In this proceeding we do not believe that the book cost of the property of this company, plus the amounts expended for permanent improvements (book cost), truly represents its present value. Labor and material costs have increased since many items of the plant were installed, and the present market value of its land and buildings is in excess of their purchase price.

On the other hand, we do not believe that the cost of reconstruction at present prices as above determined is a true measure of

the value of the property. If the entire telephone plant of the Black River company was installed as a unit, material savings would be had over the piece-meal construction contemplated in the reconstruction estimate made by the company.

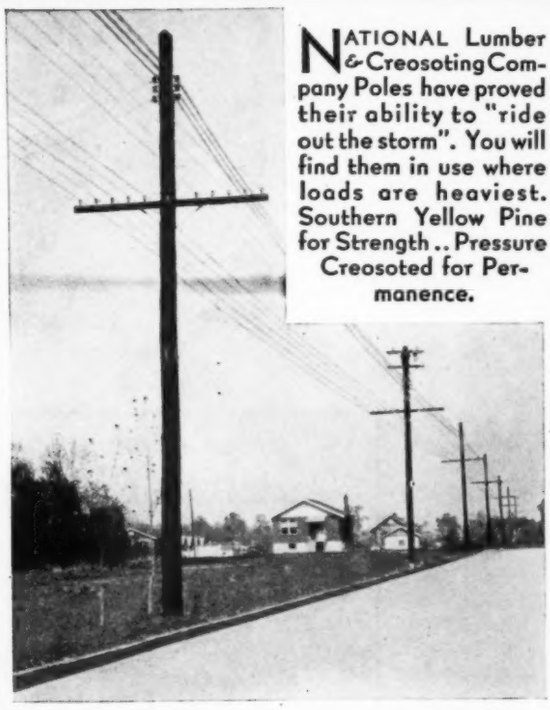
In addition, such estimate was based on the 1929 high level of prices, and we are justified in taking notice of the fact that there has been a marked decrease in both material and labor costs since these estimates were made. It is also proper to consider that if this plant were reconstructed as a new venture, the latest developments in telephonic equipment and appliances would be installed with resulting savings in operating costs.

Considering the book cost of the property, its cost if reconstructed at present prices and all other relevant and material facts, we are of the opinion, and so find, that the value of the property of the Black River Telephone Co. including necessary organization expenses, was $870,000 in 1929 and that there should be allowed for working capital the sum of $30,000, giving a rate base for 1929 of $900,000."

The opinion then points out that the company at this time is entitled to rates that will enable it to earn a return of approximately 7½ per cent on the value of its property used in the public service.

With this the dissenting opinion sharply disagrees and points out that even upon a value of $900,000 the prevailing opinion shows a return of 8.8 per cent during the year of 1929. The opinion of Chairman Maltbie states that "upon this basis the present rates are excessive and ought to be reduced rather than increased."

An estimate of operations for 1931 as given in the opinion on which the increase order was adopted, shows that in 1931 the fair value of the property would be $1,000,000 and that a 7½ per cent return on this amount equals $75,000 and that the net revenue of the company will be $71,000, leaving a deficiency of $4,000 under a 7½ per cent return. In this manner the opinion finds that the rates now in effect will fall $4,000 short of yielding a proper return upon the fair value of the company's property used in the public service during 1931. The opinion upholding the increase in rates



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is more than 50 pages long while the dissenting opinion upholding the opposition to the increase is less than ten pages in length.

Reorganization of Southern Indiana T. & T. Co. Announced.

Reorganization of the Southern Indiana Consolidated Utilities Corp. with John F. Kent as acting president in the place of L. C. Griffitts and with new boards of directors and executive officers for all its subsidiaries, was announced in Indianapolis, Ind., on January 21.

The principal subsidiary of the corporation is the Southern Indiana Telephone & Telegraph Co., which has a case pending in the federal court and at hearings of which recently the alleged excessive expense accounts of Mr. Griffitts as president were introduced in evidence.

Annual meetings of the shareholders of the Southern Indiana Telephone & Telegraph Co., the Decatur County Independent Telephone Co., Batesville Telephone Co., and Telephone Realty Co. were held January 19 at Seymour. Mr. Kent, Thomas L. Grace, Hugh W. Hogue and E. S. Welch were elected directors of each of the companies.

H. H. Carter also was named on the board of the Southern Indiana Telephone Co. and the Decatur County company. Burt M. Schultz was named on the board of the Batesville company and J. Dwight Peterson was elected to the board of the Telephone Realty Co.

At meetings of the boards of directors of the four companies, following the annual meetings of the shareholders, John F. Kent was elected vice-president of the three telephone companies and J. Dwight Peterson vice-president of the Telephone Realty Co.; E. S. Welch was elected secretary-treasurer and general manager, and W. A. Fleenor was appointed assistant secretary-treasurer of all four companies.

The office of president was declared vacant, the announcement said.

L. C. Griffitts, who was not reelected president of the different companies, issued a statement on January 22 in which he challenged the action of the directors. He contends that the meetings at which he was dismissed were not held in accordance with the by-laws of the corporations.

"Two factions are seeking control of the Southern Indiana Telephone & Telegraph Co. and its affiliated companies," Mr. Griffitts said in a formal statement issued in Indianapolis.

"I have been advised by legal counsel of very high standing that the meeting held on January 19, 1931, was illegal and was held without regard to the by-laws by which the various companies are governed. I shall continue to render my services and to act as president and general operating official of the Southern Indiana Telephone & Telegraph Co. and its affiliated companies, and shall endeavor, as I have in the last 22 years, to render the public the very best service possible under trying conditions."

Summary of Commission Rulings and Schedule of Hearings.

ILLINOIS.

January 27: Hearing in Chicago before Commissioner Collins on proposed advance in rates by the Southwestern Bell Telephone Co., for service in New Athens, county of St. Clair, stated in rate schedule I. C. C. No. 1 first revised sheet No. 1 filed by the company.

January 27: Hearing in Chicago before Commissioner Brinkman on proposed advance in rates by the Illinois Commercial Telephone Co. for desk set telephone service, stated in rate schedule I. C. C. No. 1 original sheet 5 for Sheridan, West Brooklyn, Leland, Paw Paw, Somonauk, Earlville and Compton, and I. C. C. No. 1 original sheet 7 for Sandwich and Mendota.

MASSACHUSETTS.

January 27: Hearing on rates of the New England Telephone & Telegraph Co., of Boston. Wycliffe C. Marshall, counsel for a number of subscribers, asked the commission to order the American Telephone & Telegraph Co. to furnish the commission with reports concerning that company. He alleges that these reports should be made under the law and that the company has failed to do so.

MICHIGAN.

January 15: Hearing on the petition of the Michigan Home Telephone Co. for an increase in rates at its Muskegon exchange. The hearing followed an appraisal of company valuations by the commission.

MINNESOTA.

January 30: Hearing in St. Paul on ap-

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plication of the Pioneer Telephone Co. for approval of the sale and transfer of certain telephone properties as set forth in the respective applications submitted.

MISSOURI.

January 15: In regard to complaint of Earl Clark, et al., vs. the Inter-County Telephone Co., commission ordered an inventory and appraisal and an audit to be made of the books of the Inter-County company.

January 17: Application of the Western Telephone Corp. of Missouri for authority to render telephone service to its subscribers at Altona through its switchboard at Adrian, granted.

NEW YORK.

January 9: Petition filed by the Byron Telephone Co. for consent to the sale of its works and system to the New York Telephone Co. for $13,500. The company operates in Byron and South Byron and vicinity, serving 254 subscribers.

It is stated in the petition that the company's plant was badly damaged by a sleet storm in 1929 and that the present management does not wish to undertake new financing required to put the property in proper condition.

A former statement issued by the commission gave the company's name as the Port Byron Telephone Co., but this was an error.

OHIO.

January 19: Ohio Bell Telephone Co. authorized to extend the base rate area boundary of its Salem exchange to include adjoining rural territory.

February 3: Hearing on application of the Van Wert Home Telephone Co. for authority to increase its rates in Van Wert. The hearing was originally scheduled for January 21 but postponed, it was reported, due to conflicting engagements of counsel for the city of Van Wert.

OKLAHOMA.

January 27: Hearing on complaint of the Alma Telephone Co. and the Lone Grove Telephone Co. vs. Mid Norton, alleging invasion of territory with telephone facilities.

WISCONSIN.

January 20: Increase in telephone rates approved for the Edgerton exchange of the Commonwealth Telephone Co., whose main offices are in Madison. One-party business lines will cost $3.75 a month instead of $3.50; residence rates will remain $2.50, and there is no increase in rural rates.

January 28: Continued hearing in Hudson on application of the Wisconsin Telephone Co. for authority to apply its standard toll rates on calls from Hudson to the exchanges at New Richmond, Hammond and Baldwin.

February 2: Hearing in Milwaukee on investigation, on motion of the commission, of the classification of customers of the Wisconsin Telephone Co. in Milwaukee county.

February 16: Hearings on applications of 14 telephone companies for authority to dissolve.

The companies have been acquired by large telephone companies, and with their dissolution they will cease to exist as corporations.

The companies which have made application are the Newburg Telephone Co., Twin City Telephone Co., Argyle Telephone Co., Allenton-Kohlsville Telephone Co., Badger Telephone Co., Citizens Telephone Co., Loganville Telephone Co., Marten Telephone Co., Washington County Telephone Co., Lime Ridge & Ithaca Telephone Co., Central Telephone Co., Hubertus Telephone Co., Tri-County Telephone Co., and Jackson Telephone Co.

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New Telephone Companies and New Incorporations.

BROCK, KY.—The Sallys Branch Telephone Co. has been incorporated with a capital of $120. The incorporators are S. S. Sherman, John W. Thomas and J. W. Chenault.

COLUMBUS, OHIO.—Papers for incorporation have been filed with the secretary of state by the Leroy Telephone Co. of Leroy and Concord townships, Lake county, with a capital of 75 shares of no par stock. The incorporators are J. H. Harrison, Joe Franko, A. D. Nighman, Carl Crellin, Lee J. Callow and others.

Franchises.

SIOUX RAPIDS, IOWA.—At a special election held here a franchise was voted to the Northwestern Bell Telephone Co. by a vote of 187 to 111. At a previous election the franchise was refused.

FAIRMONT, W. VA. — A franchise has been granted by the Marion County court to the Clay District Telephone Co. for the construction, maintenance and operation of telephone lines over, across and under the public roads of Marion county.

The company has its principal offices in Harrison county and most of its lines are in that county, but for some years it has maintained some lines in Marion county by permission of the court. These special permits were not altered by the terms of the franchise granted.

The court retained the right to order any changes in location of lines, if, by reason of subsequent changes in roadbeds, the lines ever obstruct the right-of-way.

Construction.

SCOTTSBORO, ALA.—The entire system of the Jackson County Telephone Co. is being rebuilt. New underground cable is being laid in the town, a new switchboard is being installed, and additions are being made to the plant. A number of telephone poles will be set. Individual line service will be furnished those who prefer it to the party line service.

The system is controlled by J. L. Kirk, manager and owner of several companies, with headquarters in Dalton, Ga., and will be continued under the present name.

Mr. and Mrs. B. L. Vann, who have been connected with the company for over 10 years, are the local managers.

Mr. Randolf, of Georgia, who is one of Mr. Kirk's engineers, has already arrived and started operations. It is probable the reconstruction work will cover the greater part of 9 or 10 months.

NEW HAVEN, CONN. — A construction program of $10,100,000 for 1931 was outlined in a recent announcement by officials of the Southern New England Telephone Co.

This sum, it was pointed out, is about 12 per cent greater than the average annual amount spent for construction during the last five years and embodies projects designed for use only in the immediate future.

BOSTON, MASS.—At its first regular monthly appropriation meeting of the year, the executive committee of the New England Telephone & Telegraph Co. authorized the expenditure of $2,273,006, for new construction and improvements in plant necessary to meet the demand for service.

For Maine, the appropriations aggregate $42,290; New Hampshire, $46,273; Vermont, $35,540; Massachusetts, $1,915,858; Rhode Island, $233,045. Of the amount authorized, $505,246 were appropriated for central office equipment; $191,194 for station equipment, $599,616 for exchange lines $116,906 for toll lines, and $938,438 to cover the cost of hundreds of routine additions to plant in all parts of the company's territory during February.

LENNOX, S. D.—Rebuilding of the lines of the Central West Public Service Co. has been begun here. It is estimated an expenditure of $12,000 will be required to complete the work. Material for the rebuilding of the lines has already arrived.

It is stated that about three months will be required to complete the reconstruction work. The old telephone poles, crossarms and wire will be removed, and will be replaced by new equipment. Thousands of feet of lead-sheeted cable are to be installed. Part of the cable will be underground.

Elections.

BROWNS VALLEY, CALIF.—At the annual meeting of the stockholders of the Browns Valley Telephone Exchange, James Harding, George W. Swigley, John Labadie, Ray Burris and Mrs. Charles Buell were chosen to serve as directors in the new term.

James Harding was made chairman of the board, and Ray Burris will continue as general manager and treasurer of the company. John Labadie was elected secretary.

GALESBURG, ILL.—Officers and directors of the Intra-State Telephone Co. were re-elected at the annual meeting as follows: G. B. Churchill, president; F. C. Woods, vice-president and general manager; R. G. Roadstrum, secretary and manager; C. E. Marsh, treasurer; L. D. Johnson, assistant treasurer and Wilfred Arnold, attorney. The directors include Messrs. Churchill, Johnson, Marsh, Woods, Roadstrum and A. R. Bone, E. R. Cogswell, O. N. Custer, Sidney Nirdlinger.

During the year, the company acquired the Avon Telephone Co., adding nearly 500 stations to its list, which now numbers 8,600. Mr. Woods, general manager, reporting activities of the past year outlined briefly some of the expansions contemplated during 1931.

GALVA, ILL.—The Galva Telephone Co. held its annual meeting recently in the offices of the company and elected Mrs. Carrie Dexter as the new director, succeeding the late P. O. Norling.

The board of directors now consists of R. P. Dexter, S. T. Dexter, F. H. House, F. U. White, G. D. Palmer, C. W. Wiseman and Mrs. Carrie Dexter.

GAYS, ILL.—At the recent annual meeting of the Gays Telephone Co., the following officers were elected: W. E. Phipps, president; Orville Roby, vice-president; T. R. Storm, secretary and treasurer; Scott Young, William Beldon, Orville Jeffries and Earnest Chamberlin, directors. H. H. Rankin will continue as manager of the company.

A financial report submitted at the meeting showed a total balance of $471, after undergoing a severe sleet storm last winter which necessitated a lot of repair work and construction.

PORT BYRON, ILL.—Daniel Eipper, of Moline, G. B. Coe, of Coe township, and C. R. Wartman of Port Byron, were elected members of the board of directors of the Port Byron Telephone Co. at the recent annual session of stockholders.

Other officers elected are: President, C. R. Wartman; vice-president and treasurer, G. B. Coe; manager and secretary, B. M. Skelton.

The Port Byron Telephone Co. was organized and incorporated in 1909 and has developed into an efficient independent telephone system.

At present there are 515 subscribers in the company. Considerable work was completed last year in improving the system. The grounded system gradually is being changed to metallic.

Long distance and city service is furnished the local company by the Illinois Bell Telephone Co. Byron M. Skelton, manager, stated that an increasing number of persons is taking advantage of the toll service, which has increased greatly in the last 10 years.

Mr. Skelton has been connected with the company for more than 10 years. Mrs. Elizabeth Young, chief operator, has been with the company 17 years.

IDAVILLE, IND.—The Idaville Cooperative Telephone Co. has reelected the following officers for the coming year: President, Harry Foust; vice-president, Charles Hoover; secretary-treasurer, Ed. Schlegelmilch; manager, Marcellus McCall; director, Glen Wright. Will Keck is the operator of the company.

MILLERSBURG, IND.—At the annual meeting of the stockholders of the Farmers Mutual Telephone Co. the following directors were elected: Allen Smoker, who has been manager for a year, Allen Yoder, Ed. Bartholomew, Walter Scranage, Henry Boyer, Oris Chiddister and Mrs. Ira Stroup.

Mr. Yoder and Mrs. Stroup are the new members of the board, succeeding Jacob Veach and Clarence Cripe. The board will meet next month to elect officers.

NEW PARIS, IND.—Directors of the New Paris Mutual Telephone Co., elected by stockholders at its annual meeting, reelected the following officers: M. A. Weaver, president; Joe E. Swart, vice-president; J. R. Peters, secretary; Carl Kaser, treasurer, and Elmer Whitehead, manager.

The directors are: M. A. Weaver, Joe E. Swart, J. R. Peters, Charles Lutes, W. S. Cline and Carl Kaser.

BLOOMFIELD, IOWA.—W. O. McMillin was reelected president of the Citizens Mutual Telephone Co., at a recent meeting of the board of directors. John Denny was reelected vice-president, and W. C. Deupree, secretary. The only change in the officials of the company was the election of Mrs. Hallie C. Deupree to succeed W. H. Wiseman as treasurer. L. W. Cruikshank and W. S. Neal were elected to serve on the executive committee, of which the president is also a member.

Assessments for members of the company were fixed to be the same as last year; semi-annual payments of $4.50 for

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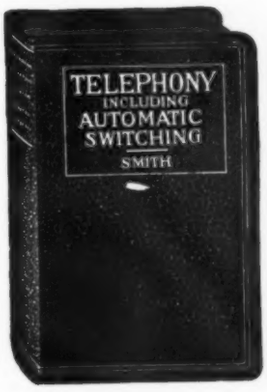

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city members and $4 for country line members, payable to the treasurer. This makes a total annual assessment of $9 for city patrons and $8 for members with telephones on the rural lines.

A new switchboard has been ordered by officers of the company, which will be installed and ready for use about April 15. The new building of the company, now under construction, is also expected to be ready by that date. A special assessment will be made at that time to pay for the extensive improvements that have been made by the company.

DECORAH, IOWA.—The Lincoln Telephone Co. at its recent annual meeting elected officers for the ensuing year as follows: Edward Ellingson, president; John Fjelstul, vice-president; Ole Sanderson, secretary; Elmer Ringeon, treasurer, and George Melgeson, Frank Dvorak, William Soukup, Sam Kuntz and Halvor Rue, directors.

LITCHFIELD, MICH.—The annual meeting of the Farmers Mutual Telephone Co. has been held. The same board of directors was reelected with the exception of H. L. Welch and Fred Crumpton taking the places of A. E. Ferry and E. J. Rogers.

At a meeting of the directors held later the following officers were elected for the coming year: President, W. A. Coplin: vice-president, W. S. Adams; secretary, J. D. Hawks; treasurer, F. A. Gordan.

Miscellaneous.

LITTLE ROCK, ARK.—Purchase by the Morgan Utilities Corp. of the Mississippi Valley Utilities Corp. of Memphis, Tenn., for a consideration of $1,600,000 was announced recently by S. R. Morgan, Little Rock and Chicago, president of the Morgan concern.

The Memphis corporation operates light plants, water works, telephone companies and ice companies in 22 towns and cities in Tennessee, Kentucky and Mississippi, Mr. Morgan said. The new addition to the Morgan interests will be headed by J. O. Prude, Jr., Memphis, who succeeds J. E. Conway, while John Burse, auditor for Morgan Utilities in Little Rock, will be secretary of the new unit.

ROCHESTER, IND.—The advertising and soliciting campaign put on during the month of December by the Rochester Telephone Co., was very successful. More than 150 orders for telephones and extensions were added to the list in the 30 days' drive. Many others, who expect to be away temporarily or who will change locations soon, it was reported will become subscribers in the near future.

The company officials asked the commission for permission to grant free installations for 30 days which was granted. Then the company planned and carried out an attractive advertising campaign in the local newspaper.

In addition, employes of the company were drilled as solicitors and paid a small fee for each subscriber they contracted. They worked diligently and successfully, increasing the subscribers' list more than 10 per cent.

MILWAUKEE, WIS.—The five-day week is now in effect for approximately 1,900 employes of the Wisconsin Telephone company, John O'Day, vice-president, announced the middle of this month. Besides some 1,300 central office operators, 600 employes of the plant department are now working 40 hours a week instead of 48. Pay is for 40 hours.

The company decided on the five-day week in order to keep all employes at work, despite a falling off in business, Mr. O'Day explained. Employes in some departments, however, are still working 48 hours a week.

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